

Getting Started with

# Typhoon™ FLA 7000

býtt úr ensku



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# 1 Inngangur

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## Purpose of Getting Started

This manual provides you with the instructions needed to handle the Typhoon FLA 7000 system in a safe way.

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## Forkröfur

Til að starfrækja Typhoon FLA 7000 á tilætlaðan hátt, verður að uppfylla eftirfarandi skilyrði:

- You have read and understood the safety instructions outlined in this manual.
  - The instrument is installed according to the instructions in this manual.
- 

## Í þessum kafla

Í þessum kafla er að finna mikilvægar upplýsingar fyrir notendur og almenna lýsingu á Typhoon FLA 7000 og tilætlaðri notkun þess.

---

## 1.1 Mikilvægar upplýsingar fyrir notendur

### Lesið þetta fyrir notkun Typhoon FLA 7000

All users must read this entire manual to fully understand the safe use of Typhoon FLA 7000.

### Tilætluð notkun

Typhoon FLA 7000 is a fast laser scanner optimized for quantitative phosphorimaging, Amersham ECL Plex™ Western blots, visible fluorescence and gel documentation.

Typhoon FLA 7000 er eingöngu ætlaður til rannsókna og skal ekki nota í klínískum eða greiningartilgangi.

### Öryggisleiðbeiningar

Þessar notandaupplýsingar innihalda öryggistilkynningar (VIÐVÖRUN, ATHUGIÐ og TILKYNNING) varðandi örugga notkun vörunnar. Sjá skilgreiningar að neðan.



#### VIÐVÖRUN

**VIÐVÖRUN** varar við hættuástandi sem getur leitt til dauða eða alvarlegs slyss ef ekki er farið að með gát. Mikilvægt er að halda ekki áfram nema öllum kröfum sé fullnægt og viðkomandi skilji þær vel.



#### AÐVÖRUN

**VARÚÐ** merkir hættuástand sem, sé ekki komið í veg fyrir það, getur leitt til minniháttar eða meðalalvarlegs slyss. Mikilvægt er að halda ekki áfram fyrr en öll tilgreind skilyrði eru uppfyllt og skilin að fullu.



#### TILKYNNING

**LEIÐBEINING** felur í sér fyrirmæli sem fara verður að til að koma í veg fyrir skemmdir á vörunni eða öðrum búnaði.

## 1 Inngangur

### 1.1 Mikilvægar upplýsingar fyrir notendur

## Ráð og ábendingar

**Efnisyfirlit**     *Athugasemd er notuð til að gefa til kynna upplýsingar um hvernig best er að nota vöruna vandræðalaust.*

**Ábending:**     *Ábending varðar hvernig má bæta verkferla og gera þá sem best úr garði.*

---

## Feitletrun og tvípunktur

hugbúnaðaratriði eru auðkennd með texta með **skáletrun**. Tvípunktur greinir á milli þrepa í valmynd. Þannig vísar **File:Open** til **Open** skipunarinnar í **File** valmyndinni.

Vélbúnaður er auðkenndur með **feitletruðum** texta (t.d. **Power**).

---

## 1.2 Upplýsingar um staðla og tilskipanir

This section lists the directives and standards that are fulfilled by the Typhoon FLA 7000 system.

### Framleiðsluupplýsingar

The table below summarizes the required manufacturing information. For further information, see the EU Declaration of Conformity document.

Requirements	Innihald
Heiti og heimilisfang framleiðanda	GE Healthcare Bio-Sciences AB, Björkgatan 30, SE 751 84 Uppsala, Sweden
Nafn og kennitala tilkynnts aðila	INTERTEK SEMKO AB, NB 0413

### Samræmi við tilskipanir Evrópusambandsins.

Vara þessi samræmist þeim Evróputilskipunum sem eru taldar upp í töflunni með því að uppfylla samsvarandi samhæfða staðla.

Tilskipun	Titill
2006/42/EB	Vélatilskipun
2004/108/EB	Tilskipun um rafsegulviðssamhæfi
2006/95/EB	Lágspennutilskipun

### Alþjóðlegir staðlar

Vara þessi uppfyllir kröfur eftirfarandi staðla:

Staðall	Lýsing	Athugasemdir
EN/IEC 61010-1, UL 61010-1, IEC 61010-2-081, CAN/CSA-C22.2 No. 61010-1	Rafbúnaður til nota við mælingar, stýringu og á rannsóknarstofum – Öryggiskröfur	EN 61010-1 harmonized with EU directive 2006/95/EC

Staðall	Lýsing	Athugasemdir
EN 61326-1 VCCI Class A FCC Part 15 B Class A ICES-003 Class A	Rafbúnaður til nota við mælingar, stýringu og á rannsóknarstofum – Kröfur um rafsegulsviðssamhæfi og ónæmi	EN 61326-1 harmonized with EU directive 2004/108/EC
EN-ISO 12100	Safety of machinery, general principles for design, risk assessment and risk reduction	EN ISO staðall er samhæfður við tilskipun ESB nr. 2006/42/EB.
EN/IEC 60825-1	Safety of laser products	EN standard harmonized with 2006/95/EC
USA 21 CFR, Chapter I, Subchapter J, Part 1040.10 Laser Products	Safety of laser products	

CE-merki



- CE-merkið og samsvarandi samræmisfirlýsing Evrópusambandsins gilda um tækið þegar það er:
- notað sem sjálfstæð eining eða
  - tengt öðrum vörum sem er mælt með eða lýst í notendagögnunum og
  - notað í sama ríki og GE afhenti það í, að undanskildum breytingum sem getið er um í notendagögnunum.

Samræmi við reglur FCC

Þessi búnaður er í samræmi við hluta 15 af FCC reglunum. Notkun er háð tveimur eftirfarandi skilyrðum: (1) Þetta tæki má ekki valda skaðlegri truflun og (2) tækið verður að taka við allri truflun sem það verður fyrir, þar á meðal truflun sem gæti orsakað óæskilega notkun.

**Efnisyfirlit**      *Notandinn er varaður við því að breytingar eða lagfæringar sem GE veitir ekki skýrt samþykki fyrir gætu fellt úr gildi heimild notandans til að nota búnaðinn.*



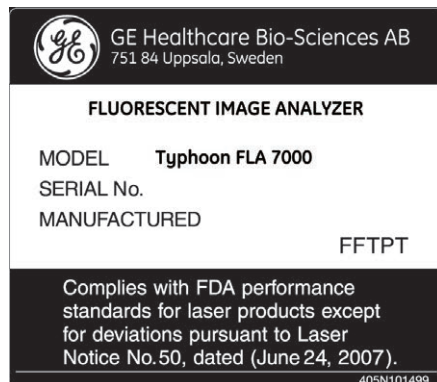
Þessi búnaður hefur staðist prófun á takmörkunum fyrir stafræn tæki í flokki A samkvæmt 15. kafla reglna FCC. Þessar takmarkanir voru hannaðar til að veita viðunandi vörn gagnvart skaðlegum truflunum við notkun búnaðarins í viðskiptalegum tilgangi. Þessi búnaður myndar, notar og getur geislað útvarpsbylgjum og ef hann er ekki settur upp og notaður í samræmi við handbókina getur hann valdið skaðlegum truflunum á fjar-skiptum. Líklegt er að notkun þessa búnaðar í íbúabyggð valdi skaðlegri truflun og þarf notandinn þá að lagfæra truflunina á eigin kostnað.

## Environmental requirement

Krafa	Titill
2011/65/ESB	Tilskipun um takmarkanir á hættulegum efnum (e. Restriction of Hazardous Substances, RoHS)
2012/19/ESB	Tilskipun um úrgang raf- og rafeindabúnaðar (e. Waste Electrical and Electronic Equipment, WEEE)
ACPEIP	Stjórnun mengunarvarna af völdum vara sem gefa rafrænar upplýsingar, takmarkanir á hættulegum efnum (RoHS) í Kína
Reglugerð (ESB) nr. 1907/2006	Skráning, mat, leyfisveiting og takmarkanir á iðefnum (e. Registration, Evaluation, Authorization and restriction of CHemicals, REACH)

## Laser standards

This instrument is a Class 1 (IEC60825-1:2007/EN60825-1:2007) laser product.



## 1 Inngangur

### 1.2 Upplýsingar um staðla og tilskipanir

The following lasers can be installed in Typhoon FLA 7000:

Laser and class	Wavelength	Maximum power
LD laser, class 3B	473 nm	20 mW (CW)
SHG laser, class 3B	532 nm	10 mW (CW)
LD laser, class 3B	635 nm	45 mW (CW)
LD laser, class 3B	650 nm	80 mW (CW)

**Efnisyfirlit**     *The beam divergence of all laser modules is collimated.*

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## Samræmi tengdra tækja við reglur

Allur búnaður sem er tengdur í Typhoon FLA 7000 skal uppfylla öryggiskröfur EN/IEC 61010-1, eða viðeigandi samhæfðra staðla. Innan ESB, skal tengdur búnaður vera CE-merktur.

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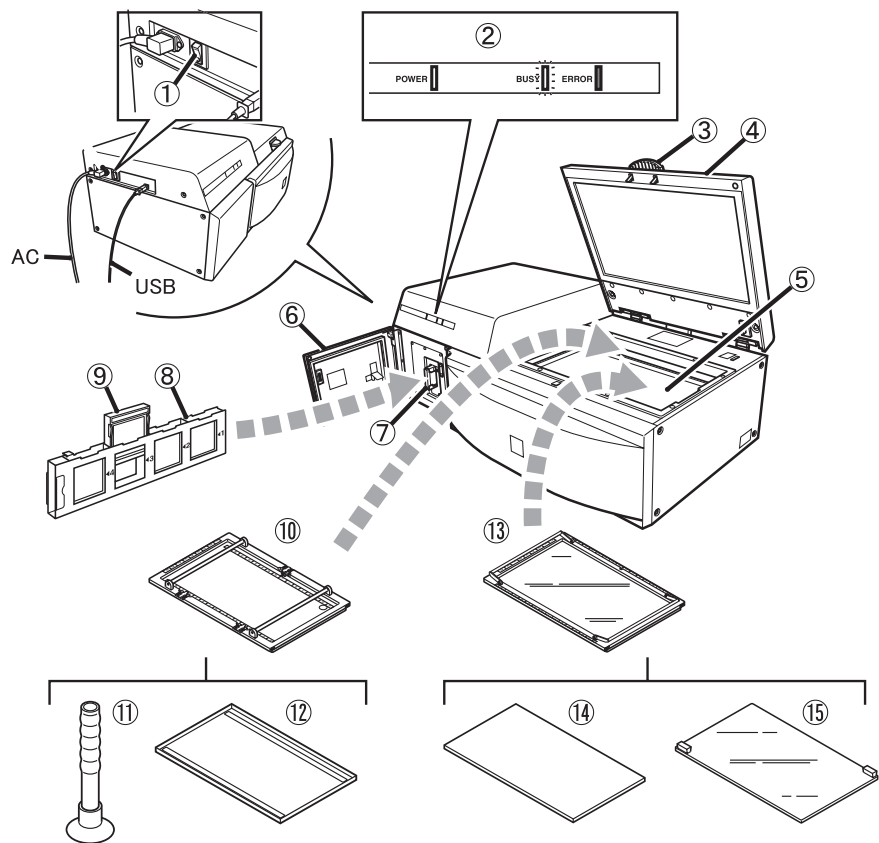
## 1.3 The Typhoon FLA 7000 laser scanner

### Major features

The compact Typhoon FLA 7000 is an image analyzer that offers high performance, multifunctionality, and high-speed reading. Benefits include:

- Detection of high-sensitivity autoradiographs using storage phosphor screens.
  - Four lasers and multiple filters enable the use of a variety of fluorescent dyes and detection methods.
  - Data is acquired through high resolution, sensitivity and wide range linearity.
  - Compatibility with various types of samples, for example fluorescent labels, fluorescent dyes, CBB stain, silver stain, X-ray film, and storage phosphor screens.
-

Parts and functions



Hluti	Virkni
1	Power switch, located between the AC connector and the USB connector
2	Indicator lamps
3	Knob
4	Lid
5	Setting block
6	Filter change door
7	Filter module slot
8	Filter module
9	Sía

Hluti	Virkni
10	Phosphor Stage (Phosphor stage)
11	Suction rod
12	Protection cover for storage phosphor screen
13	Fluor Stage Fluor stage
14	Digitizing fluorescent plate
15	Membrane weight (included in Fluor stage)

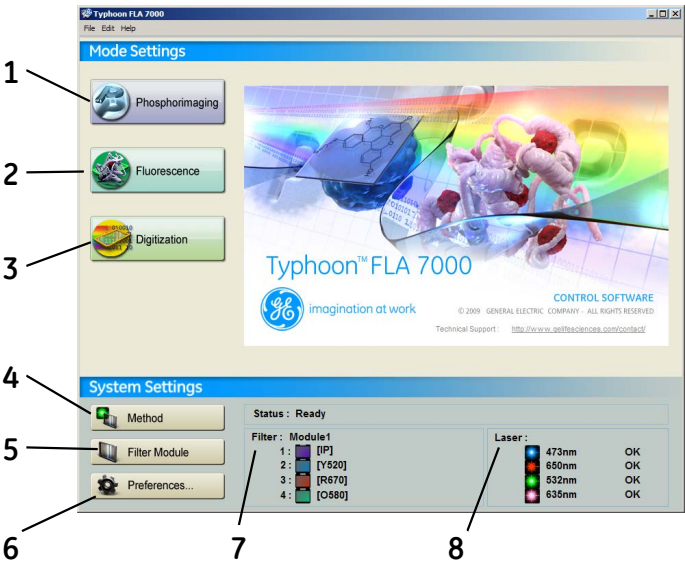
## 1.4 Typhoon FLA 7000 control software

### System requirements

Þáttur	Minimum requirement
Operating system	Microsoft® Windows® XP Professional SP3 (32-bit) <i>eða</i> Microsoft Windows Vista® Business SP2 (32-bit) <i>eða</i> Microsoft Windows 7 Professional (32-bit) <i>eða</i> Microsoft Windows 7 Professional (64-bit)
Internal memory	1 GB
Processor	Intel® Core 2 Duo processor
Hard drive	80 GB
Monitor resolution	1280 × 1024 pixels
Other requirements	One USB 2.0 port DVD-ROM drive

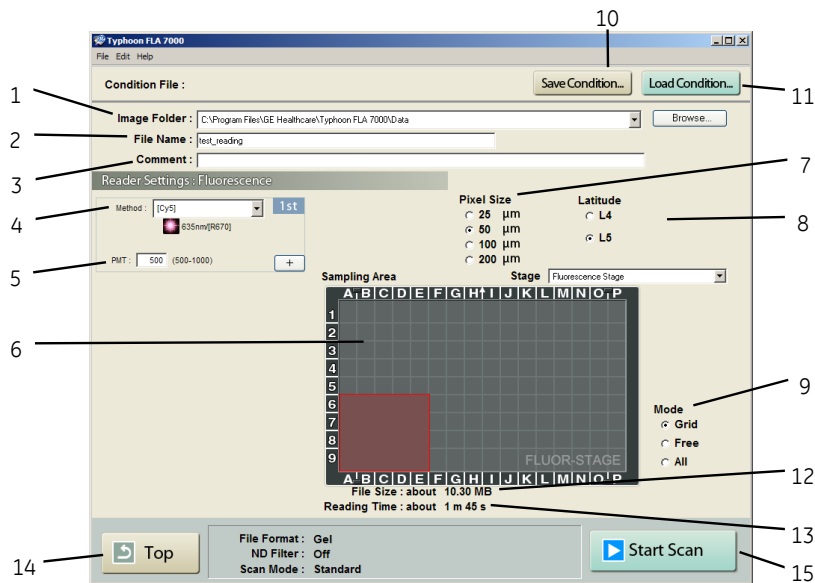
Overview of the main window

The Typhoon FLA 7000 is used to control, use and supervise the Typhoon FLA 7000.



Hluti	Virkni
1	<b>Phosphorimaging</b> button: click to read a storage phosphor screen
2	<b>Fluorescence</b> button: click to read a fluorescent sample
3	<b>Digitization</b> button: click to perform digitization
4	<b>Method</b> button: click to register or erase a combination of laser and filter.
5	<b>Filter Module</b> button: click to change or register a filter.
6	<b>Preferences</b> button: click to set the image file format, scan mode, correction mode and to enable or disable the ND filter.
7	<b>Filter</b> : displays the loaded filters.
8	<b>Laser</b> : displays the status of the loaded laser units

Overview of the reader settings window



Hluti	Lýsing
1	<b>Image folder:</b> specify where to save the file after the reading.
2	<b>File Name:</b> enter the name of a file to save image data.
3	<b>Comment:</b> enter an optional comment. The comment is embedded in the file where the image is saved, and can be viewed with the analyzing software.
4	<b>Method:</b> set the method to use in the scan. Up to 4 scans can be performed in a row, all with individual methods.
5	<b>PMT:</b> set the voltage of the photo-multiplier tube. The higher the value, the higher the sensitivity. <div><div><div>+</div></div><div>Click to increase the number of scans</div></div> <div><div>-</div></div> <div>Click to decrease the number of scans</div>



Hluti	Lýsing
6	<p>Set the scanning area.</p> <ol style="list-style-type: none"> <li>1 Select a stage in the drop-down menu.</li> <li>2 Drag the red square to the desired position of the scanning area.</li> <li>3 Drag the sides of the red square as needed to adjust the size of the scanning area.</li> </ol>
7	<p><b>Pixel Size:</b> set the pixel size.</p> <p>Choose a <b>small</b> pixel size for <b>high quality</b> images. Note that a small pixel size setting increases the reading time and the size of the image file.</p>
8	<p><b>Latitude:</b> Specify the dynamic range.</p> <ul style="list-style-type: none"> <li>• <b>L5</b> provides a larger detectable range than <b>L4</b>.</li> <li>• <b>L4</b> provides a finer density gradation, if the signals of the sample areas are in the correct range.</li> </ul>
9	<p><b>Mode:</b> Specify the mode for the reading area borders.</p> <ul style="list-style-type: none"> <li>• Select <b>Grid</b> to limit the borders to the grid lines.</li> <li>• Select <b>Free</b> for an arbitrary area.</li> <li>• Select <b>All</b> to use the entire Fluor stage as the reading area.</li> </ul>
10	<p><b>Save Condition...</b> click this button to save the current reading conditions in a file, if desired. For details, refer to the <i>User Manual</i>.</p>
11	<p><b>Load Condition...</b> click this button to load previously saved reading conditions, if desired. For details, refer to the <i>User Manual</i>.</p>
12	<p><b>File Size:</b> the estimated size of the result data file is presented.</p>
13	<p><b>Reading Time:</b> the estimated time required for the scan is presented.</p>
14	<p><b>Top:</b> return to the main window.</p>
15	<p><b>Start Scan:</b> start the scan. The sample must be loaded before starting a scan.</p>

## 2 Öryggisleiðbeiningar

### Í þessum kafla

Þessi kafli inniheldur eftirfarandi hluta:

hluti	Sjá bls.
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2.2 Merkingar	25
2.3 Verklagsreglur í neyðartilvikum	30
2.4 Upplýsingar um endurvinnslu	31

## 2.1 Öryggisráðstafanir

### Inngangur

The Typhoon FLA 7000 is powered by mains voltage and is used to image samples that may be hazardous. Before installing, operating or maintaining the equipment, you must be aware of the hazards described in the user documentation. Follow the instructions provided to avoid personal injury or damage to the equipment.

### Almennar reglur



#### VIÐVÖRUN

Do not use the equipment if smoke, strange noises or strange odors can be perceived, or if the equipment becomes unusually hot. This may result in fire or electric shock.

Stop using the equipment immediately, turn off the power switch and unplug the equipment from the power outlet. Contact your local GE representative to request repair.



#### VIÐVÖRUN

Do not damage the power supply cord by bending, twisting, heating or allowing them to become pinned under the equipment. Using damaged power cords could result in fire or electric shock.

If the power supply cords are damaged, contact your local GE representative for replacements.



#### VIÐVÖRUN

Do not place the equipment on unstable tables or on inclined surfaces, as the equipment could be dropped or fall, resulting in injury.

## 2 Öryggisleiðbeiningar

### 2.1 Öryggisráðstafanir



#### VIÐVÖRUN

Do not allow liquids, flammable materials or metallic objects to get into the Typhoon FLA 7000. This may result in fire or electric shock.

Turn off the power switch, unplug the equipment from the power outlet, then contact you local GE representative.



#### AÐVÖRUN

Do not scratch or drop parts containing glass such as lenses, filters or lights.

## Laser safety



#### VIÐVÖRUN

Never detach the inner cover screwed to this instrument. If it is detached, laser beam may leak with a risk of loss of vision.



#### AÐVÖRUN

Never cancel the interlocks in this instrument, laser beam may leak with a risk of loss of vision.



#### AÐVÖRUN

Using procedures or adjustments other than those specified in this manual may result in hazardous exposure to laser radiation.

## Radiation safety

This instrument is not equipped with any radioisotope or radiation generating unit, and is therefore not regulated by radiation hazard prevention laws. However, the instrument is capable of reading Storage phosphor screens which may be polluted by radioisotopes.



### AÐVÖRUN

If radioisotope (RI) pollution occurs, stop use of the instrument immediately and follow the instructions of your radiation administrator.

## Varúðarráðstafanir gegn slysum á fólki



### AÐVÖRUN

Always wear gloves, protective glasses and a lab coat or similar when handling samples.



### AÐVÖRUN

Always wear cotton gloves when handling Storage phosphor screens.



### AÐVÖRUN

Wear gloves, protective glasses and a lab coat or similar when disposing of the Typhoon FLA 7000.

## Uppsetning og tilfærsla tækisins



### VIÐVÖRUN

The Typhoon FLA 7000 instrument must always be connected to a grounded power outlet.

## 2 Öryggisleiðbeiningar

### 2.1 Öryggisráðstafanir



#### VIÐVÖRUN

Gætið þess að lofræstingarinntök eða -úttök kerfisins lokist ekki af.



#### VIÐVÖRUN

**Rafmagnssnúra.** Notið eingöngu rafmagnssnúrur með viðurkenndum tengingum sem er afhent eru eða viðurkennd af GE.



#### VIÐVÖRUN

**Heavy object.** Because of the significant weight of Typhoon FLA 7000, great care must be taken not to cause squeeze or crushing injuries during movement. Use suitable lifting equipment when moving the unit.



#### AÐVÖRUN

- Do not connect any USB devices other than the Typhoon FLA 7000 to the computer in which the Typhoon FLA 7000 Control Software is installed.
- Use only the Typhoon FLA 7000 Control Software during reading.

## Notkun kerfisins



#### VIÐVÖRUN

Do not use the equipment with a power supply other than that recommended. Fire and electric shock could result.



#### VIÐVÖRUN

Do not use the equipment within or near a sink, or in humid or dusty environments. Fire and electric shock could result.



#### VIÐVÖRUN

Connect the power supply directly to a grounded wall power outlet. The use of extension cords or multiple loads on one electrical outlet could result in fire and electric shock.



#### AÐVÖRUN

Do not use the same power supply as that of large equipment such as an air conditioner or centrifuge. Malfunction could result.



#### TILKYNNING

Avoid exposing storage phosphor screens in places where the environmental radiation may be increased, for example rooms with concrete walls or in basements.

## Viðhald



#### VIÐVÖRUN

Do not attempt to modify the equipment, or fire and electric shock could result.



#### VIÐVÖRUN

Do not use excessive amounts of liquids for cleaning the Typhoon FLA 7000, this may result in product malfunction or electric shock.



#### AÐVÖRUN

Wear gloves to prevent direct contact with chemical substances.

## 2 Öryggisleiðbeiningar

### 2.1 Öryggisráðstafanir



#### **AÐVÖRUN**

Take care when connecting the power supply cable. Do not tug on the cable, and do not handle the connection plugs with wet hands.



#### **AÐVÖRUN**

Connect the computer hardware on the same power circuit, otherwise the equipment may be influenced by electrical noise.



#### **AÐVÖRUN**

Turn off the power switch and remove connecting cables before moving the equipment.



#### **AÐVÖRUN**

Turn the power switch off before cleaning the inside of the equipment.



#### **AÐVÖRUN**

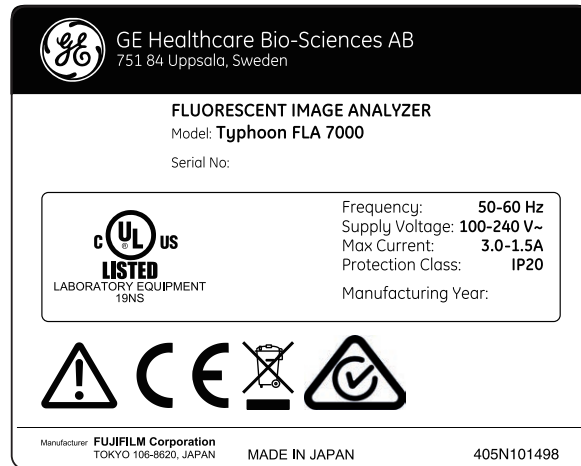
Unplug the equipment if it will not be used for an extended period.



## 2.2 Merkingar

### Typhoon FLA 7000 serial number



The Typhoon FLA 7000 serial number is located on a label on the back of the instrument.





### Tákn í öryggismerkingum

Merking- ar	Hvað táknið merkir
	<b>Viðvörðun!</b> Lesið notendaupplýsingarnar áður en kerfið er notað. Fjarlæg- ið ekki hlífur af tækinu né skiptið um hluti nema notendaupplýsingarnar heimili það sérstaklega.
	Kerfið samræmist kröfum um rafsegulsviðssamhæfði (EMC) í Ástralíu og Nýja-Sjálandi.
	Kerfið samræmist viðeigandi tilskipunum ESB.

Merkingar varðandi notkun  
hættulegra efna

Merkingar	Hvað tákníð merkir
	Þetta tákn merkir að úrgangi raf- og rafeindabúnaðar skuli ekki farga sem óflokkuðu húsasorpi og hann þurfi að hirða sérstaklega. Vinsamlegast hafið samband við viðurkenndan fulltrúa framleiðandans til að fá upplýsingar um förgun búnaðarins.
	Þetta tákn merkir að varan hafi að geyma hættuleg efni umfram mörk kínverska staðalsins SJ/T11363-2006 um kröfur um styrkleikamörk ákveðinna hættulegra efna í rafeindabúnaði.

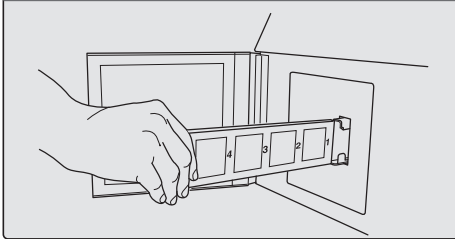
Labels concerning laser light

Merkingar	Hvað tákníð merkir
	<b>CAUTION!</b> Avoid exposure to the laser beam when the lid is open.
	<b>CAUTION!</b> Class 3B Laser product when open and interlock defeated. Avoid exposure to the beam.  Do not attempt to defeat the safety interlocks under the sample lid or behind the filter door, or otherwise try to gain access to the interior of the instrument through any other opening. Exposure to laser light can cause injury. Viewing the laser light directly can cause blindness.

## Labels at the front of Typhoon FLA 7000

- 1) フィルタのセット/交換は、FLA-7000本体の取扱説明書に記載の手順でおこなってください。
- 2) フィルタモジュールをセットする際は、奥に突き当たるまで確実にFLA-7000本体へ差し込んでください。

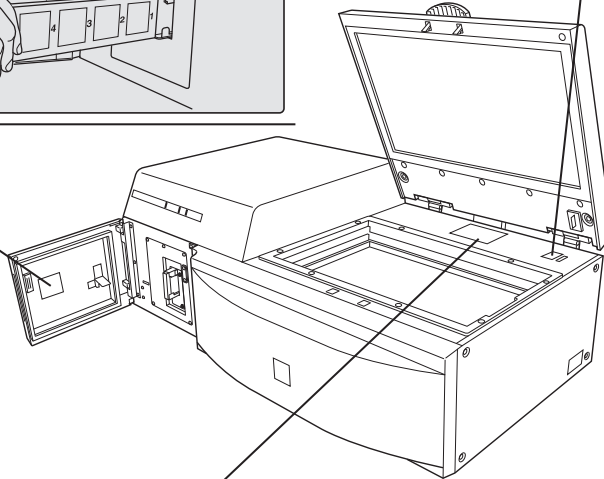
- 1) Please set or exchange filter as directed in operation manual.
- 2) Please insert the filter module into FLA-7000 firmly till it reaches the end.



**注意**  
ここを開いて、インターロックを解除するとクラス3Bの可視光及び不可視光が出ます。  
ビームの照らす区域を避けてください。

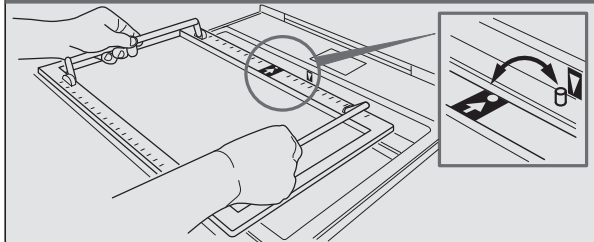
**CAUTION**  
CLASS 3B VISIBLE AND INVISIBLE LASER RADIATION WHEN OPEN AND INTERLOCKS DEFEATED.  
AVOID EXPOSURE TO THE BEAM.

**ATTENTION**  
RAYONNEMENT LASER VISIBLE ET INVISIBLE DE CLASSE 3B A L'OUVERTURE ET QUAND LE VERROUILLAGE EST DEJOUÉ.  
ÉVITER L'EXPOSITION AU RAYON.

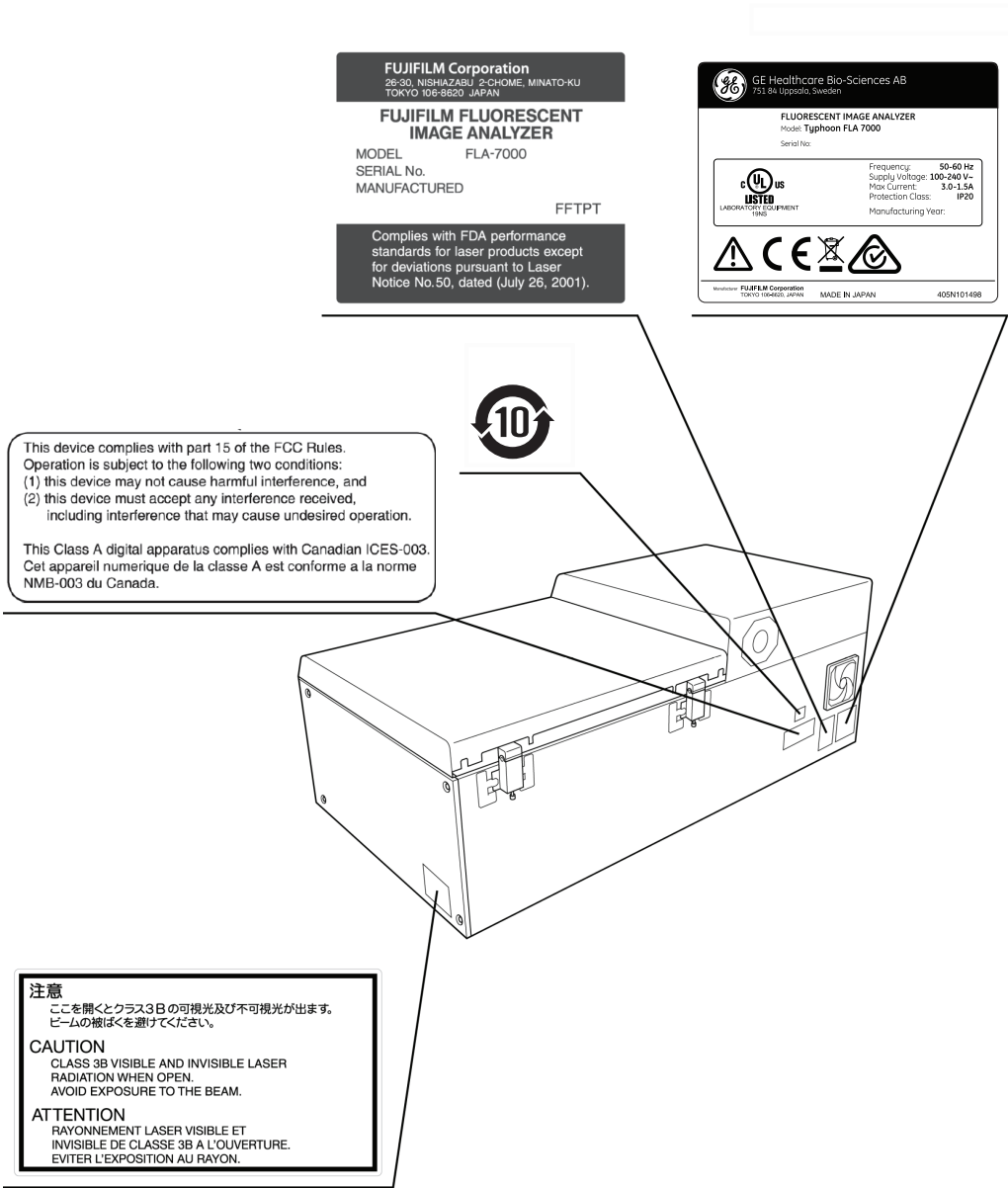


- 1) ステージは本体のピンに確実に差し込むようにセットしてください。
- 2) 蛍光ステージにセットできるサンプルの厚みは30mm以下です。

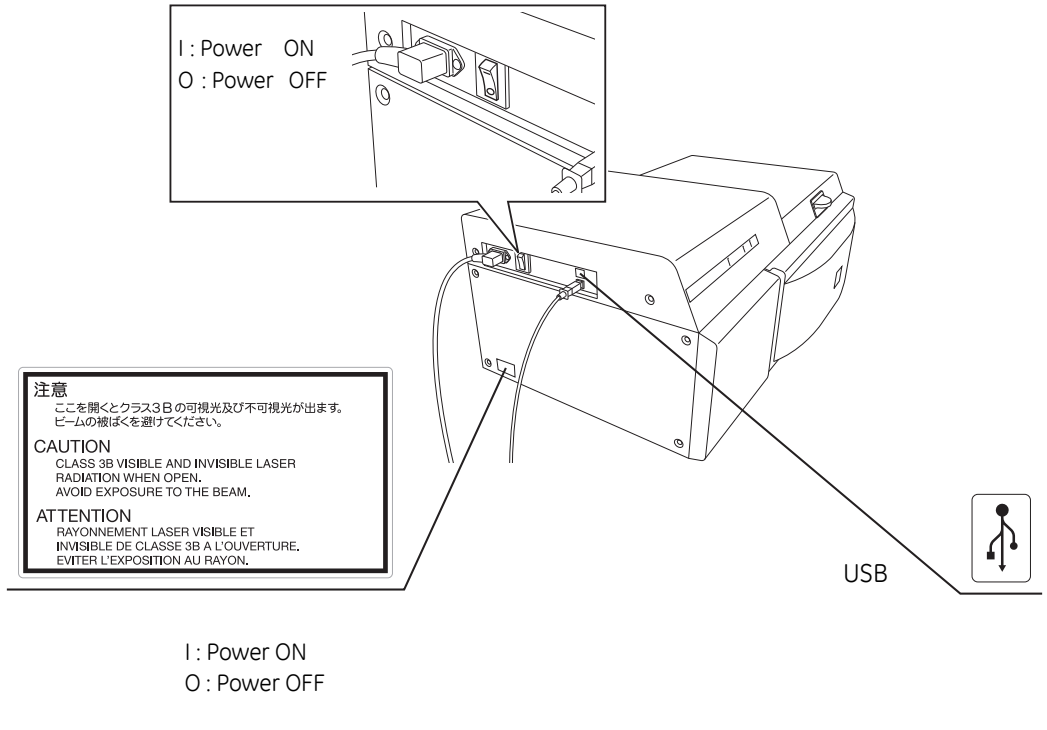
- 1) Please insert the stage so that it fits pins on the loading section firmly.
- 2) Sample thickness on the fluor stage is 30mm or less.



Labels at rear of Typhoon FLA 7000



## Labels on left side of Typhoon FLA 7000



## 2.3 Verklagsreglur í neyðartilvikum

This section describes how to do an emergency shutdown of the Typhoon FLA 7000 instrument. The section also describes the results of a power failure.

### Neyðarstöðvun

Prep	Aðgerð
1	Click the <b>Stop</b> button in the Typhoon FLA 7000.
2	Turn off the Typhoon FLA 7000 by pressing the power switch on the left side of the instrument body.
3	Disconnect the power cord from the power outlet.

### Rafmagnsleysi

The results of a power failure depends on the unit or units affected.

Unit affected by power failure	Results
Typhoon FLA 7000 tæki	<ul style="list-style-type: none"><li>• The reading is interrupted immediately. The instrument is in an undefined state.</li><li>• The data collected up to the time of the power failure is available in the file created when starting the scan.</li></ul>
Computer running the control software	<ul style="list-style-type: none"><li>• The computer shuts down immediately.</li><li>• The run continues, but no data is saved.</li></ul>

## 2.4 Upplýsingar um endurvinnslu

### General instructions for disposal

Þegar Typhoon FLA 7000 er tekið úr notkun skal flokka mismunandi efni búnaðarins og endurvinna í samræmi við reglur á lands- og staðarvísu.

---

### Specific instructions for disposal

Measure the superficial radio isotope pollution of the instrument body and storage phosphor screen as mentioned in the radiation hazard prevention section of the *User Manual*.

If the pollution level exceeds the limit, dispose of the instrument body as radioactive waste. Otherwise, dispose of the materials according to applicable laws and regulations for disposal of industrial waste.

---

### Förgun rafmagnsíhluta

Raf- og rafeindabúnaði skal ekki fargað sem óflokkuðu húsasorpi og skal hann hirtur sérstaklega. Hafið samband við viðurkenndan fulltrúa framleiðandans til að fá upplýsingar um förgun búnaðarins.



# 3 Uppsetning

## Í þessum kafla

Þessi kafli inniheldur eftirfarandi hluta:

hluti	Sjá bls.
3.1 Kröfur um staðsetningu og umhverfi tækisins	33
3.2 Transporting Typhoon FLA 7000	34
3.3 Delivery inspection	35
3.4 Tengingar	36
3.5 Uppsetning hugbúnaðar	37
3.6 Preparations before starting Typhoon FLA 7000	68



## 3.1 Kröfur um staðsetningu og umhverfi tækisins

**Efnisyfirlit**     *The Typhoon FLA 7000 is intended for indoor use only.*

Þáttur	Krafa
Aflgjafi	100 to 240 V AC $\pm 10\%$ , 3.0 to 1.5 A
Line frequency	50 til 60 Hz
Staðsetning	Stable, horizontal surface. Do not place in direct sunlight or in brightly lit places.
Umhverfishiti	+10°C to +30°C
Raki	20% to 75%, non-condensing
Maximum altitude	2000 m above sea level

## 3.2 Transporting Typhoon FLA 7000



**AÐVÖRUN**

Typhoon FLA 7000 must be secured before long distance transports. Contact GE for help and advice before transporting Typhoon FLA 7000 long distances.

The Typhoon FLA 7000 weighs approximately 62 kg and requires at least two persons to lift and move.

### Precautions before moving the instrument

Þrep	Aðgerð
1	Turn off the Typhoon FLA 7000.
2	Turn off the computer and any peripheral devices.
3	Disconnect the power cords and the USB connection.

## 3.3 Delivery inspection

### What to check

Upon receiving Typhoon FLA 7000, inspect the package for external damages.

Should you find any external damages, notify the delivery company and contact GE for further advice.

---

## 3.4 Tengingar



### AÐVÖRUN

Only authorized service personnel is allowed to install Typhoon FLA 7000. Contact your local GE representative for help and advice.

## Samskipti

### Þrep

### Aðgerð

- 1 Connect a USB cable to the USB port on the left side of the Typhoon FLA 7000.
- 2 Connect the other end of the USB cable to a USB port on the computer.



### AÐVÖRUN

- Do not connect any USB devices other than the Typhoon FLA 7000 to the computer in which the Typhoon FLA 7000 Control Software is installed.
- Use only the Typhoon FLA 7000 Control Software during reading.

## Rafmagn

Connect the power cord of the Typhoon FLA 7000 to a grounded power outlet.



### VIÐVÖRUN

Use only power cords delivered or approved by GE.

## 3.5 Uppsetning hugbúnaðar

### Installation sequence

Software installation is performed in the following sequence:

- 1 Install the USB control driver.
  - 2 Install the USB function driver (Windows XP only).
  - 3 Install the Typhoon FLA 7000 control software.
-

### 3.5.1 Installing Typhoon FLA 7000 Control Software for Windows XP

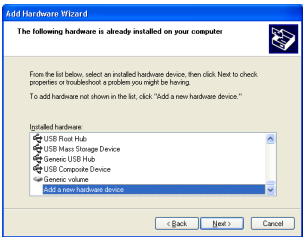
#### Before you begin

Log in using a Windows account with administrator privileges.

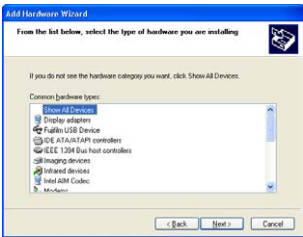
#### Install the USB Control Driver for Windows XP

**Prep**      **Aðgerð**

- 1      Disconnect Typhoon FLA 7000 from the computer.
- 2      Open the control panel and select **Printers and Other Hardware**.
- 3      Click **Add Hardware** to open **Add hardware wizard**.
- 4      Click the **Next** button in **Add hardware wizard**.
- 5      Select **Yes, I have already connected the hardware** and click **Next**.
- 6      Select **Add a new hardware device** and click the **Next** button.



- 7      Select **Install the hardware that I manually select from a list (Advanced)** and click the **Next** button.
- 8      Select **Show All Devices** and click the **Next** button.



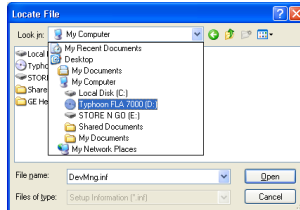
- 9      Click the **Have Disk** button in the **Add hardware wizard**.

### 3.5.1 Installing Typhoon FLA 7000 Control Software for Windows XP

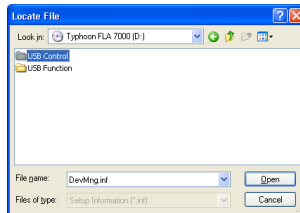
#### Prep Aðgerð

10 Insert the Typhoon FLA 7000 DVD and click the **Browse** button.

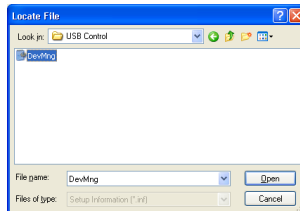
11 Select to install the driver from the Typhoon FLA 7000 DVD.



12 Open the **USB Control** folder.



13 Select the **DevMng.inf** file and click the **Open** button.



14 Click the **OK** button in the **Install from disk** dialog.

15 Click the **Next** button in the **Add hardware wizard**.

16 Click the **Next** button again.

17 Click the **Continue Anyway** button in the **Hardware Installation** dialog.



3 Uppsetning  
3.5 Uppsetning hugbúnaðar  
3.5.1 Installing Typhoon FLA 7000 Control Software for Windows XP

Prep      Aðgerð

- 18      Click the **Finish** button to complete the driver installation.

## Install the USB function driver for Windows XP

Prep      Aðgerð

- 1      Connect the computer and the Typhoon FLA 7000 with a USB cable and turn the power switch of the Typhoon FLA 7000 to **ON**. The scanner is automatically detected by the computer.
- 2      In the **Found New Hardware Wizard** dialog, choose **No, not this time**.



- 3      Click the **Next** button in the **Found New Hardware Wizard** dialog.
- 4      Insert the installation DVD.
- 5      Select **Install the software automatically (Recommended)**.
- 6      Click the **Next** button in the **Found New Hardware Wizard** dialog.
- 7      Click the **Finish** button to complete the installation.

## Install Typhoon FLA 7000 for Windows XP

Prep      Aðgerð

- 1      Insert the Typhoon FLA 7000 DVD.
- 2      Locate and double-click the file **Typhoon FLA 7000.exe**.
- 3      In the **Typhoon FLA 7000 - InstallShield Wizard**, click the **Next** button.



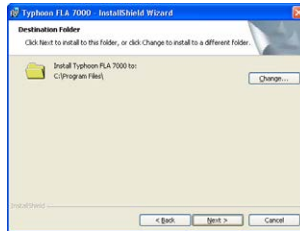
**Prep**      **Aðgerð**

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- 4      Read the license text. If the license agreement is not acceptable please contact a GE representative, see back cover of this manual for contact information.

Select ***I accept the terms in the license agreement*** and click the ***Next*** button.

- 5      Select destination folder in the dialog:



- Click the ***Next*** button to install the software at the default folder ***C:\Program Files***.
- Click the ***Change*** button to install to a different folder.

- 6      Click the ***Install*** button in the installation dialog.

- 7      Click the ***Finish*** button to finish the installation of Typhoon FLA 7000.
-

## 3.5.2 Installing Typhoon FLA 7000 Control Software for Windows Vista

### Before you begin

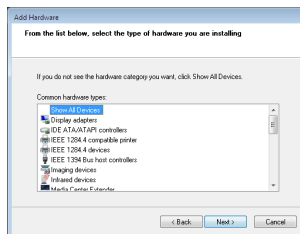
Log in using a Windows account with administrator privileges.

### Install the USB control driver

**Efnisyfirlit** During software installations, you may be asked to confirm your actions in a dialog with the text **Windows needs your permission to continue**. Enter an administrator password, if prompted, then click **Continue** to proceed with the installation.

#### Þrep Aðgerð

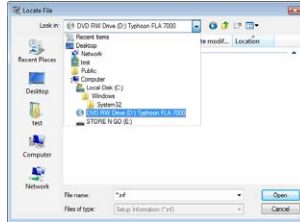
- 1 Disconnect Typhoon FLA 7000 from the computer.
- 2 Open the control panel and click **Classic View** in the upper left corner.
- 3 Open **Add Hardware**.
- 4 In the **Add Hardware** dialog, click the **Next** button.
- 5 Select **Install the hardware that I manually select from a list (Advanced)** and click the **Next** button.
- 6 Select **Show All Devices** and click the **Next** button.



- 7 Click the **Have Disk** button.
- 8 Insert the Typhoon FLA 7000 DVD and click the **Browse** button.

**Prep**      **Aðgerð**

- 9      Select to install the driver from the Typhoon FLA 7000 DVD.



- 10      Select the **USB Control** folder and click **Open**.



- 11      Select the file **DevMng.inf** and click the **Open** button.
- 12      Click the **OK** button in the dialog **Install from disk**.
- 13      Click the **Next** button in the wizard **Add hardware**.
- 14      Click the **Next** button once again.
- 15      The following warning is displayed. Proceed by clicking **Install this driver software anyway**.

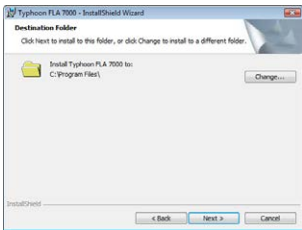


- 16      Click the **Finish** button in the **Add Hardware** wizard to complete the installation.

Install the control software and  
USB function driver

**Efnisyfirlit** During software installations, you may be asked to confirm your actions in a dialog with the text **Windows needs your permission to continue**. Enter an administrator password, if prompted, then click **Continue** to proceed with the installation.

Þrep	Aðgerð
1	Insert the Typhoon FLA 7000 DVD.
2	Locate and double-click the file <b>Typhoon FLA 7000.exe</b> .
3	In the <b>Typhoon FLA 7000 - InstallShield Wizard</b> dialog, click the <b>Next</b> button.
4	Read the license text. If the license agreement is not acceptable, please contact a GE representative. See the back cover of this manual for contact information.  Select <b>I accept the terms in the license agreement</b> and click the <b>Next</b> button.
5	Select destination folder in the dialog:



- Click the **Next** button to install the software at the default folder **C:\Program Files**.
  - Click the **Change** button to install to a different folder.
- 6 Click the **Install** button.
- 7 If User Account Control (UAC) is enabled in Windows Vista, a dialog displays the message **An unidentified program wants access to your computer**. Click **Allow**.

**Prep**      **Aðgerð**

---

- 8 Click ***Install this driver software anyway*** in the ***Windows Security*** dialog.



- 9 Click the ***Finish*** button.  
The installation of Typhoon FLA 7000 is now completed.
- 10 Connect the computer and the Typhoon FLA 7000 with the USB cable.
-

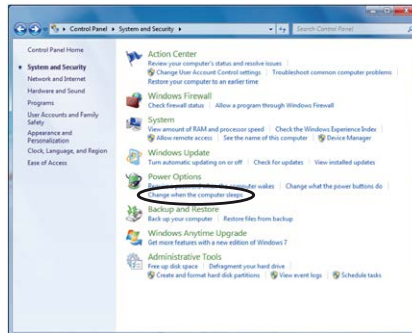
## 3.5.3 Installing 32-bit Typhoon FLA 7000 Control Software for Windows 7

### Disable the computer sleep function

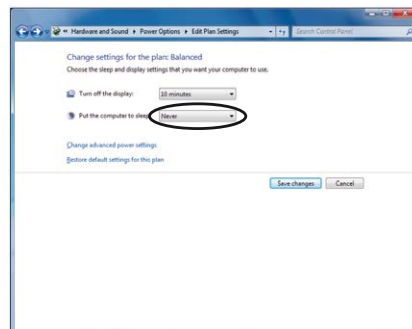
Log in using a Windows administrator account. Disable the computer sleep function as described below.

#### Prep Aðgerð

- 1 Click **Start** at the bottom left corner on the screen.
- 2 Click **Control Panel: System and Security**, then click **Change when the computer sleeps** under **Power Options**.



- 3 In the **Put the computer to sleep** list, click **Never**.



- 4 Click **Save changes**.

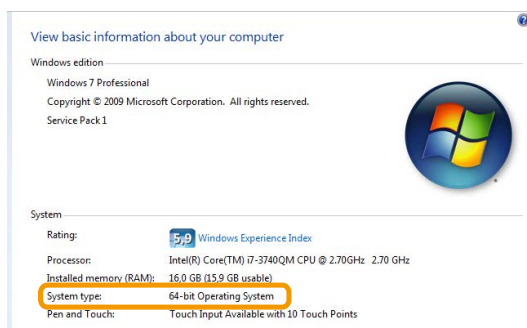
## Identify the operating system

Two software installers are included in this software. To choose the appropriate installer find out which operating system the computer is using by following the instructions below.

### Prep Aðgerð

---

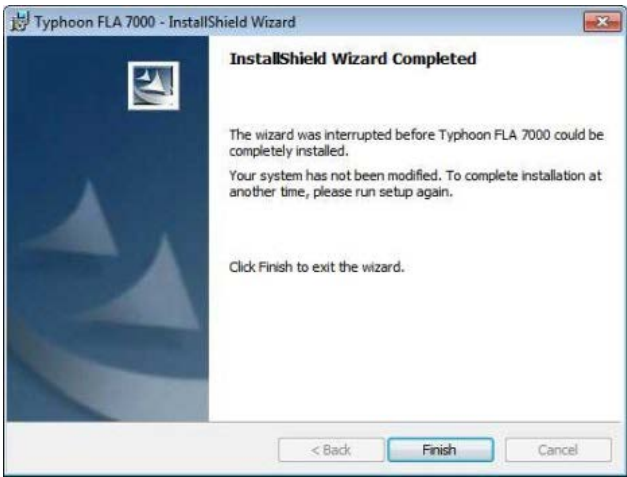
- 1 Click **Start** at the bottom left corner on the screen.
- 2 Click **Control Panel: System and Security: System** to bring up **View basic information about your computer** window.
- 3 Note the system type displayed in the window. Use the information to choose the appropriate installer.



## Choose the appropriate installer to prevent failure

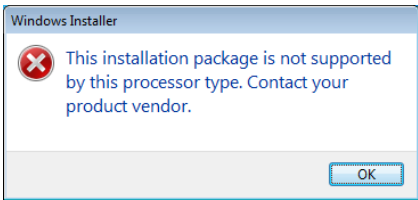
If the installer does not match with the type of the computer operating system, the Typhoon FLA 7000 is not installed successfully. If one of the following messages is displayed during the installation process, follow the instructions below.

- If the following message is displayed:



Cause	Correction
The computer is running on Windows 7 with 64-bit operating system. You have chosen the installer for Windows 7 with 32-bit operating system.	Restart the installation using the installer for Windows 7 with 64-bit operating system.

- If the following message is displayed:





### 3.5.3 Installing 32-bit Typhoon FLA 7000 Control Software for Windows 7

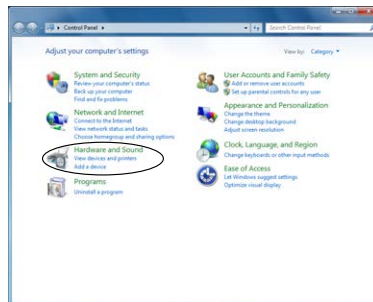
Cause	Correction
The computer is running on Windows 7 with 32-bit operating system. You have chosen the installer for Windows 7 with 64-bit operating system.	Restart the installation using the installer for Windows 7 with 32-bit operating system.

## Install the USB control driver

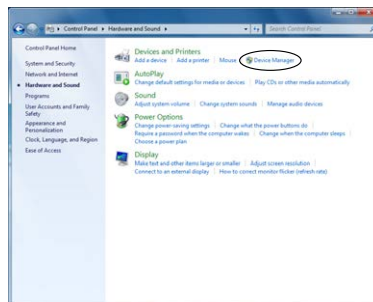
**Efnisyfirlit** During software installations, you may be asked to confirm your actions in a dialog with the text **Windows needs your permission to continue**. Enter an administrator password, if prompted, then click **Continue** to proceed with the installation.

### Þrep Aðgerð

- 1 Disconnect Typhoon FLA 7000 from the computer.
- 2 Open the control panel and click **Hardware and Sound**.



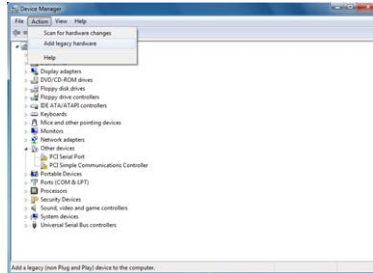
- 3 Click **Device Manager** under **Devices and Printers**.



3 Uppsetning  
3.5 Uppsetning hugbúnaðar  
3.5.3 Installing 32-bit Typhoon FLA 7000 Control Software for Windows 7

Prep Aðgerð

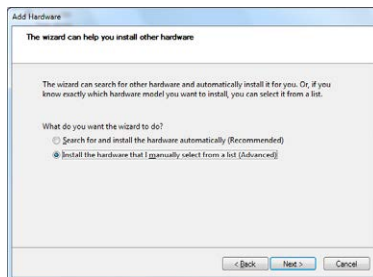
4 In the details pane, select **Action:Add legacy hardware**.



5 In the **Add Hardware** dialog, click **Next**.



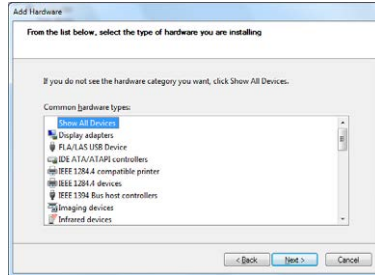
6 Select **Install the hardware that I manually select from a list (Advanced)** and click **Next**.



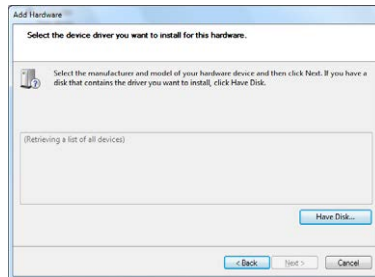
### 3.5.3 Installing 32-bit Typhoon FLA 7000 Control Software for Windows 7

#### Prep Aðgerð

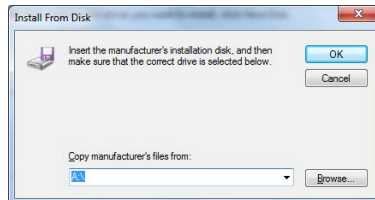
7 Select **Show All Devices** and click **Next**.



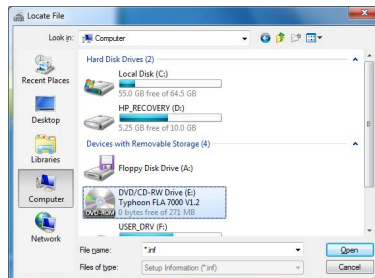
8 Click **Have Disk**.



9 Insert the Typhoon FLA 7000 DVD and click **Browse**.



10 Select to install the driver from the Typhoon FLA 7000 DVD.



11 Select the **USB Control** folder and click **Open**.

### 3 Uppsetning

#### 3.5 Uppsetning hugbúnaðar

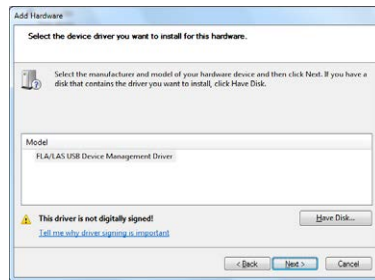
##### 3.5.3 Installing 32-bit Typhoon FLA 7000 Control Software for Windows 7

## Prep Aðgerð

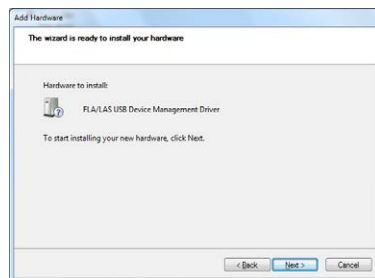
12 Select the file **DevMng.inf** and click **Open**.

13 Click **OK** in the **Install from disk** dialog.

14 Click **Next** in the **Add Hardware** wizard.



15 Click the **Next** button once again.



16 The following warning is displayed. Proceed by clicking **Install this driver software anyway**.



**Prep**      **Aðgerð**

- 17 In the **Add Hardware** wizard, click **Finish** to complete the installation.

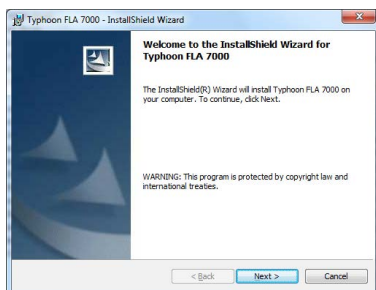


## Install the 32-bit control software and USB function driver

**Efnisyfirlit**      During software installations, you may be asked to confirm your actions in a dialog with the text **Windows needs your permission to continue**. Enter an administrator password, if prompted, then click **Continue** to proceed with the installation.

**Prep**      **Aðgerð**

- 1 Insert the Typhoon FLA 7000 DVD.
- 2 Locate and double-click the file **Typhoon FLA 7000.exe**.
- 3 In the **Typhoon FLA 7000 - InstallShield Wizard** dialog, click the **Next** button.



## 3 Uppsetning

### 3.5 Uppsetning hugbúnaðar

#### 3.5.3 Installing 32-bit Typhoon FLA 7000 Control Software for Windows 7

## Prep

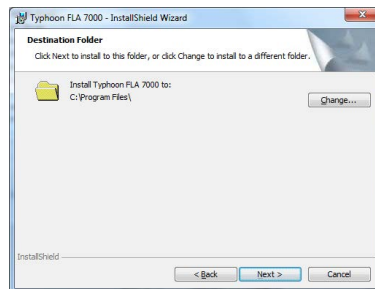
## Aðgerð

- 4 Read the license text. If the license agreement is not acceptable, please contact a GE representative. See the back cover of this manual for contact information.



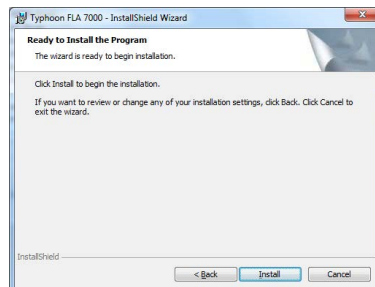
Select ***I accept the terms in the license agreement*** and click the ***Next*** button.

- 5 Select the destination folder in the dialog:



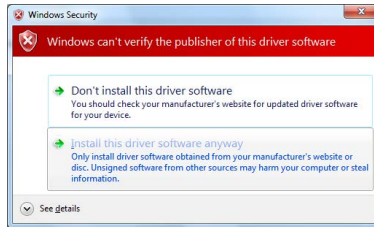
- Click the ***Next*** button to install the software at the default folder ***C:\Program Files***.
- Click the ***Change*** button to install to a different folder.

- 6 Click the ***Install*** button.

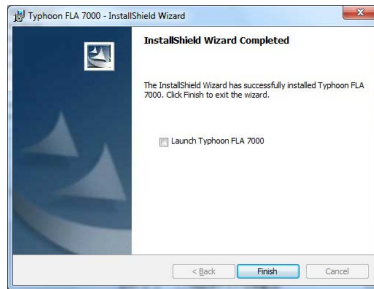


**Prep**      **Aðgerð**

- 7 If User Account Control (UAC) is enabled in Windows 7, a dialog displays the message ***An unidentified program wants access to your computer.*** Click ***Allow.***
- 8 Click ***Install this driver software anyway*** in the ***Windows Security*** dialog.



- 9 Click the ***Finish*** button to complete the installation.



- 10 Connect the computer and the Typhoon FLA 7000 with the USB cable.

### 3 Uppsetning

#### 3.5 Uppsetning hugbúnaðar

##### 3.5.4 Installing 64-bit Typhoon FLA 7000 control software for Windows 7

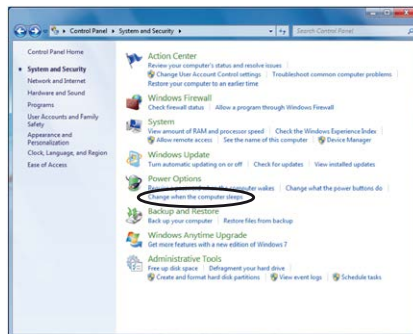
## 3.5.4 Installing 64-bit Typhoon FLA 7000 control software for Windows 7

### Disable the computer sleep function

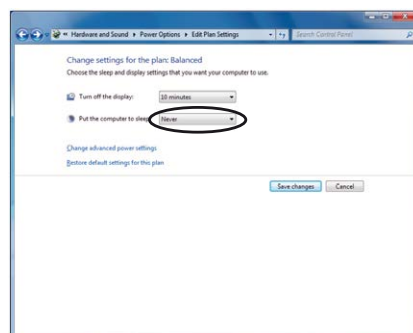
Log in using a Windows administrator account. Disable the computer sleep function as described below.

#### Prep Aðgerð

- 1 Click **Control Panel: System and Security**, then click **Change when the computer sleeps** under **Power Options**.



- 2 Select **Never** in the drop-down menu by **Put the computer to sleep**, then click **Save changes**.



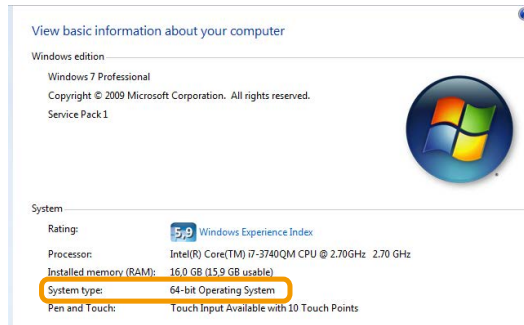


## Identify the operating system

Two software installers are included in this software. To choose the appropriate installer find out which operating system the computer is using by following the instructions below.

### Prep Aðgerð

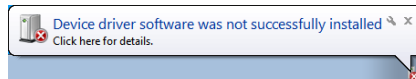
- 1 Click **Start** at the bottom left corner on the screen.
- 2 Click **Control Panel: System and Security: System** to bring up **View basic information about your computer** window.
- 3 Note the system type displayed in the window. Use the information to choose the appropriate installer.



## Choose the appropriate installer to prevent failure

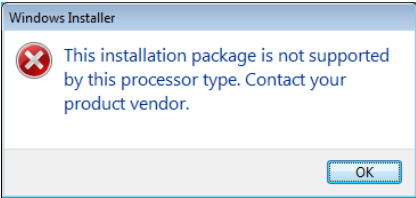
If the installer does not match with the type of the computer operating system, the Typhoon FLA 7000 is not installed successfully. If one of the following messages is displayed during the installation process, follow the instructions below.

- If the following message is displayed:



Cause	Correction
The computer is running on Windows 7 with 64-bit operating system. You have chosen the installer for Windows 7 with 32-bit operating system.	<div><div>-</div>Uninstall Typhoon FLA 7000 for Windows 7 with 32-bit operating system.</div> <div><div>-</div>Restart the installation using the installer for Windows 7 with 64-bit operating system.</div>

- If the following message is displayed:



Cause	Correction
The computer is running on Windows 7 with 32-bit operating system. You have chosen the installer for Windows 7 with 64-bit operating system.	Restart the installation using the installer for Windows 7 with 32-bit operating system.

## Install USB control driver

**Efnisyfirlit**

During software installation you may be asked to confirm your actions in a dialog with the text **Windows needs your permission to continue**. Type an administrator password, when prompted, then click **Continue**.

Follow the instructions below to install the USB control driver.

**Þrep**

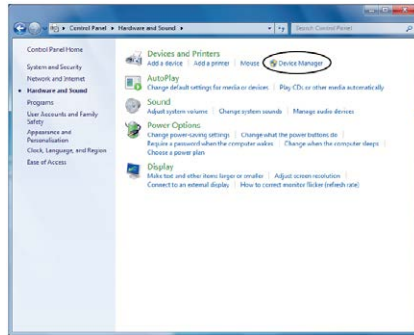
**Aðgerð**

- 1
- Disconnect the Typhoon FLA 7000 from the computer.
- 2
- Click **Start** at the bottom left corner on the screen.

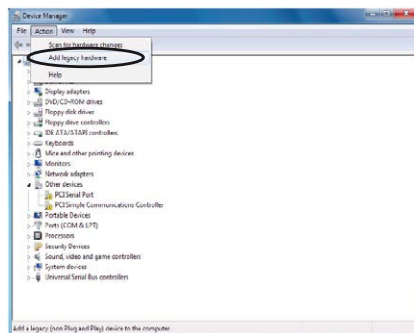
### 3.5.4 Installing 64-bit Typhoon FLA 7000 control software for Windows 7

#### Prep Aðgerð

- 3 Click **Control Panel:Hardware and Sound**, then click **Device Manager** under **Devices and Printers**.



- 4 On the **Action** menu, click **Add legacy hardware**.



- 5 In the **Add Hardware** dialog, click **Next**.



### 3 Uppsetning

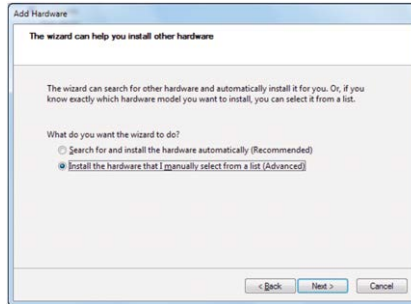
#### 3.5 Uppsetning hugbúnaðar

##### 3.5.4 Installing 64-bit Typhoon FLA 7000 control software for Windows 7

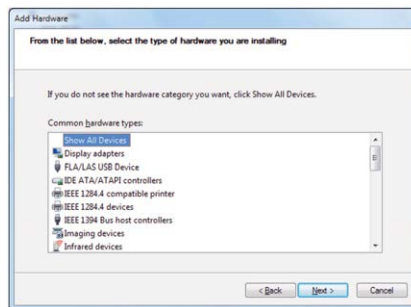
## Prep

## Aðgerð

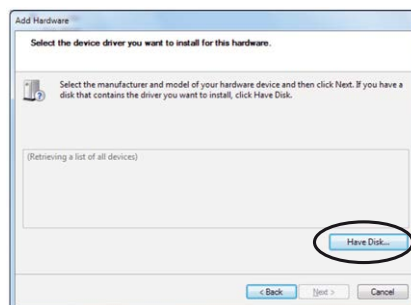
- 6 Select ***Install the hardware that I manually select from a list (Advanced)*** and click ***Next***.



- 7 Select ***Show All Devices*** and click ***Next***.

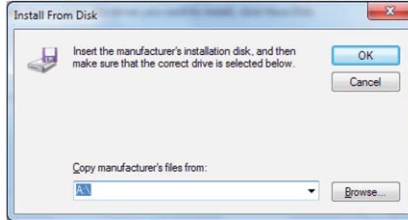


- 8 Click ***Have Disk***.

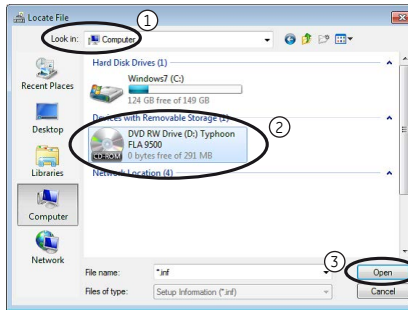


**Prep**      **Aðgerð**

- 9      Insert the Typhoon FLA 7000 DVD and click **Browse**.

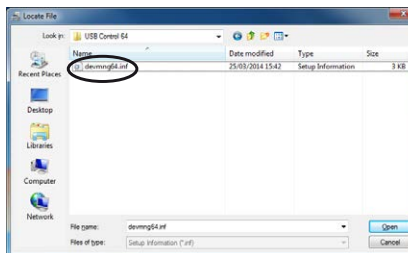


- 10      In the **Look in** list, click **Computer** (1), then click **Typhoon FLA 7000** control software DVD (2). Click **Open** (3).



- 11      In the **Installer for 64bit:USB Control 64** folder, click **Open**.

- 12      Select **DevMng64.inf** and click **Open**.



- 13      In **Install from disk** dialog, click **OK**.

### 3 Uppsetning

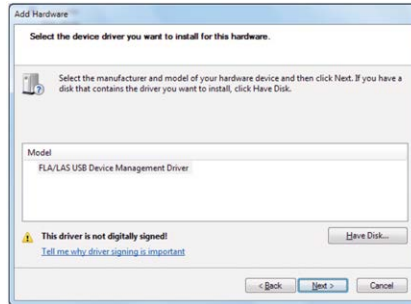
#### 3.5 Uppsetning hugbúnaðar

##### 3.5.4 Installing 64-bit Typhoon FLA 7000 control software for Windows 7

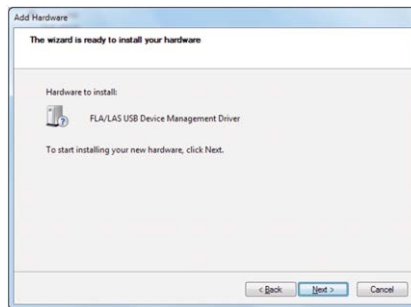
## Þrep

## Aðgerð

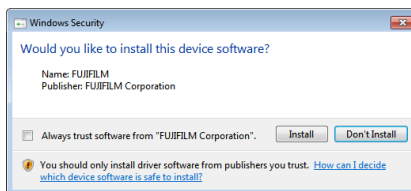
- 14 In **Add Hardware** wizard, click **Next**.



- 15 When the message **The wizard is ready to install your hardware** is displayed, click **Next**.

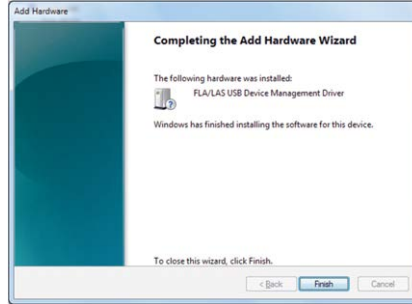


- 16 When the message **Would you like to install this device software?** is displayed, click **Install**.



**Þrep      Aðgerð**

- 17 In **Add Hardware** wizard, click **Finish**.



## Install Typhoon FLA 7000 and USB function driver

**Efnisyfirlit** During software installation you may be asked to confirm your actions in a dialog with the text **Windows needs your permission to continue**. Type an administrator password, when prompted, then click **Continue**.

**Þrep      Aðgerð**

- 1 Insert the Typhoon FLA 7000 DVD.
- 2 In the **Installer for 64 bit** folder, locate and double-click the file **Typhoon FLA 7000 for 64bit.msi**.
- 3 In the **Typhoon FLA 7000 - InstallShield Wizard** dialog, click **Next**.



### 3 Uppsetning

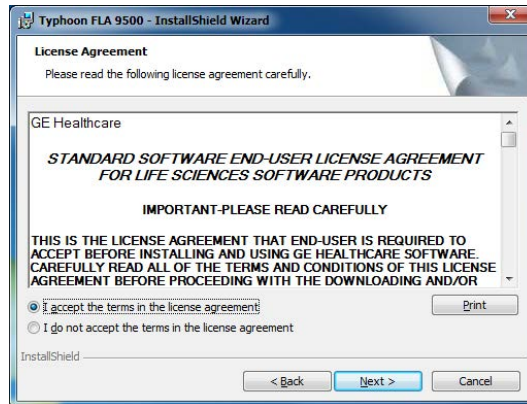
#### 3.5 Uppsetning hugbúnaðar

##### 3.5.4 Installing 64-bit Typhoon FLA 7000 control software for Windows 7

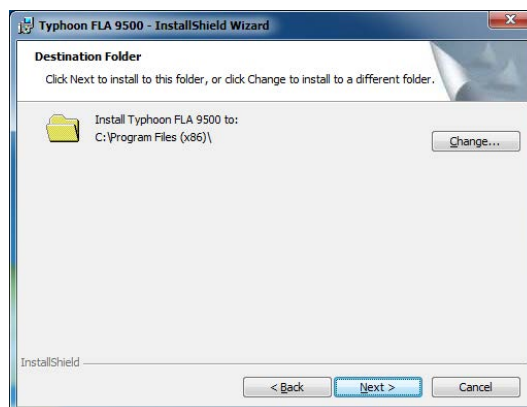
## Prep

## Aðgerð

- 4 Read the license agreement text. If the license agreement is not acceptable, please contact your GE representative. Contact information can be found on the back page of this document.



- 5 If the licence agreement is acceptable, select ***I accept the terms in the licence agreement*** and click ***Next***.
- 6 Define the software destination folder in the ***Destination Folder*** dialog as described below.

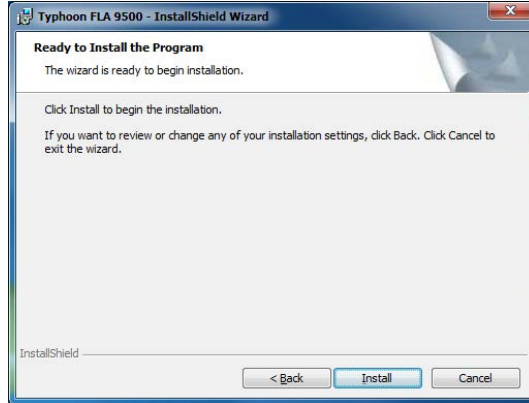


- If the default folder ***C:\Program Files (x86)\*** is acceptable, click ***Next***.
- If you want to use a different folder, click ***Change*** and define a suitable destination folder. Click ***Next***.

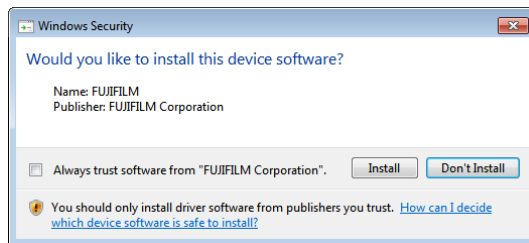


**Prep**      **Aðgerð**

- 7 Click **Install**.



- 8 If User Account Control (UAS) is enabled, a dialog displays the message **An unidentified programs wants access to your computer**. Click **Allow**.
- 9 When the message **Would you like to install this device software?** is displayed, click **Install**.



### 3 Uppsetning

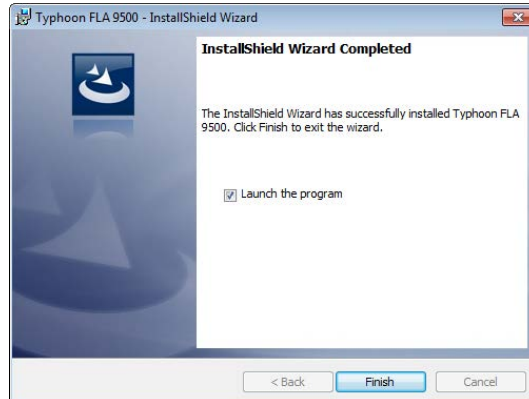
#### 3.5 Uppsetning hugbúnaðar

##### 3.5.4 Installing 64-bit Typhoon FLA 7000 control software for Windows 7

### Prep

### Aðgerð

- 10 In **Typhoon FLA 7000 - InstallShield Wizard**, click **Finish**.



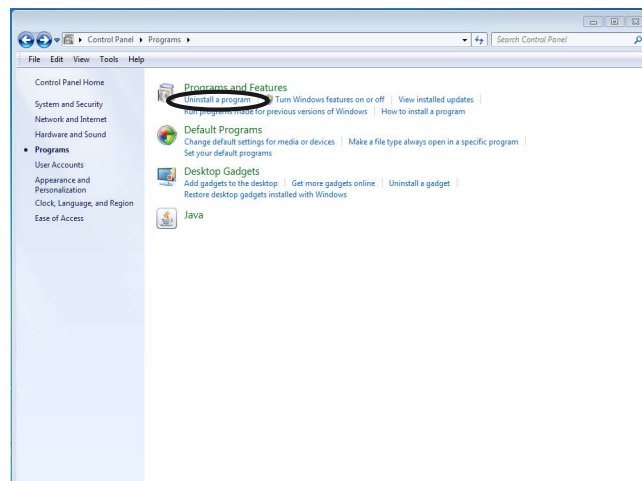
## Uninstall the software

Follow the instructions below to uninstall the Typhoon FLA 7000.

### Prep

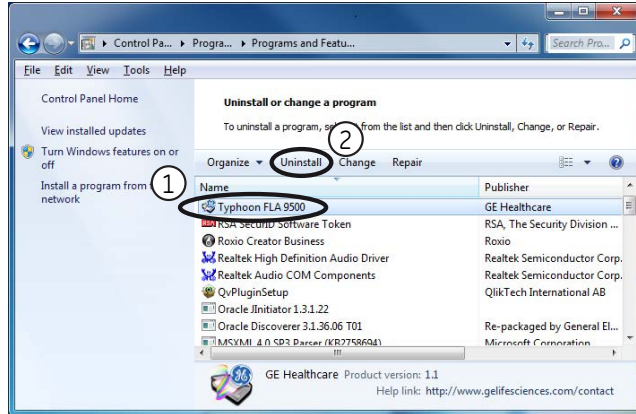
### Aðgerð

- 1 Click **Start** at the bottom left corner on the screen.
- 2 Click **Control Panel:Programs**, then click **Uninstall a program** under **Programs and Features**.



**Þrep      Aðgerð**

- 3 Select ***Typhoon FLA 7000*** (1), then click ***Uninstall*** (2).



- 4 In the confirmation dialog, click ***Yes***.
- 5 If User Account Control is enabled, a message ***An unidentified program wants to access your computer*** is displayed. Click ***Allow***.

**Upgrade the software**

Follow the instructions below to upgrade the Typhoon FLA 7000.

**Þrep      Aðgerð**

- 1 Uninstall the current version of the Typhoon FLA 7000 as described in the section ***Uninstall the software, á bls. 66*** above.
- 2 Install the new version of the Typhoon FLA 7000 as described above.

## 3.6 Preparations before starting Typhoon FLA 7000

### Checklist before starting Typhoon FLA 7000

- Typhoon FLA 7000 is placed on a sturdy, horizontal surface.
  - Typhoon FLA 7000 is connected to a grounded wall outlet.
  - Typhoon FLA 7000 is connected to the computer with a USB cable.
  - The air intake fan on the rear side of Typhoon FLA 7000 is unobstructed.
  - The air exhaust fan on the rear side of Typhoon FLA 7000 is unobstructed.
  - Typhoon FLA 7000 is not placed in direct sunlight or in a brightly lit place.
  - There are no objects on top of Typhoon FLA 7000.
  - There is no stage in the stage rack.
-

## 4 Notkun

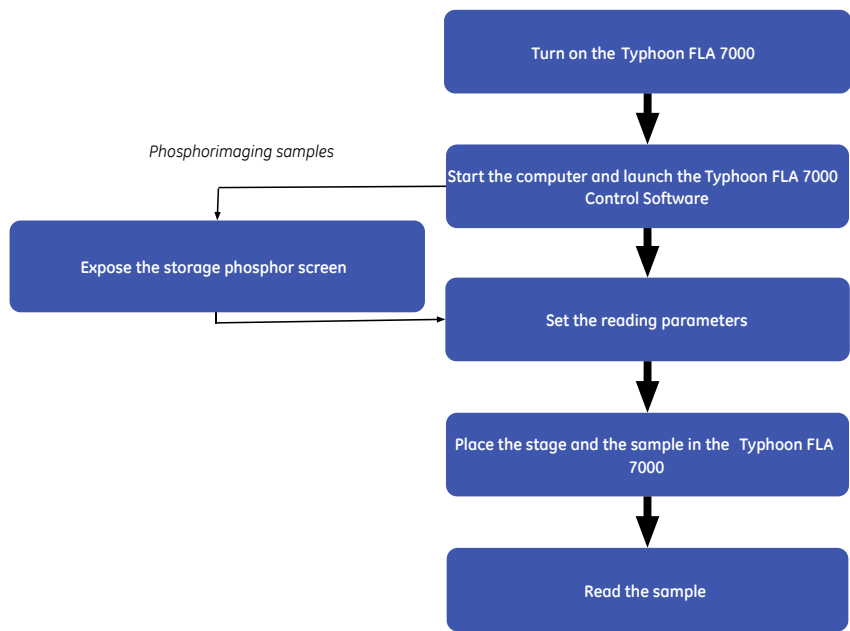
### Í þessum kafla

Þessi kafli inniheldur eftirfarandi hluta:

hluti	Sjá bls.
4.1 Yfirlit um notkun	70
4.2 Starting the instrument and the Typhoon FLA 7000 control software	71

## 4.1 Yfirlit um notkun

Using Typhoon FLA 7000 comprises a series of steps outlined below. Detailed explanations are provided in subsequent chapters.



- Turn on the Typhoon FLA 7000
- Start the computer and launch the Typhoon FLA 7000 Control Software
- Typhoon FLA 7000 Control Software
- Set the reading parameters
- Place the stage and the sample in the Typhoon FLA 7000
- Read the sample
- Phosphorimaging samples
- Expose the storage phosphor screen

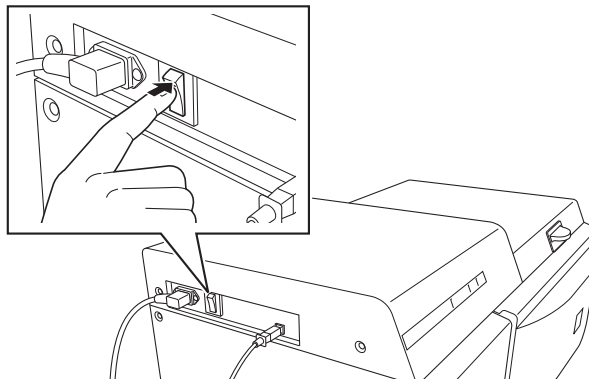
## 4.2 Starting the instrument and the Typhoon FLA 7000 control software

**Efnisyfirlit** Before turning on the instrument, open the lid and make sure that the stage rack is empty. Then, close the lid securely.

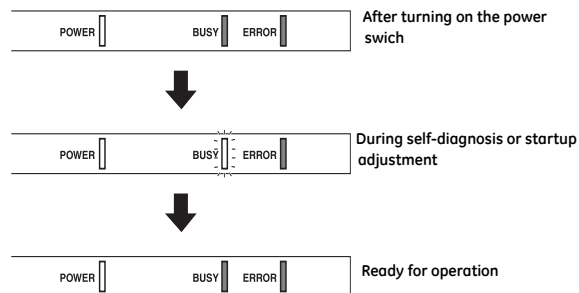
### Starting the Typhoon FLA 7000

**Þrep Aðgerð**

- 1 Push the power switch on the left side of the body to the "I" position.



- 2 When the power switch is turned on, the indicator lamps change as shown below.



After turning on the power switch  
 During self-diagnosis or startup adjustment  
 Ready for operation

## Starting the Typhoon FLA 7000 control software



### AÐVÖRUN

Do not insert a Storage phosphor screen in Typhoon FLA 7000 before turning on the machine. If an imaging plate is detected during the self-diagnosis of the Typhoon FLA 7000, the sensitivity of the Storage phosphor screen may deteriorate. The scanned data can then not be guaranteed.

#### Þrep

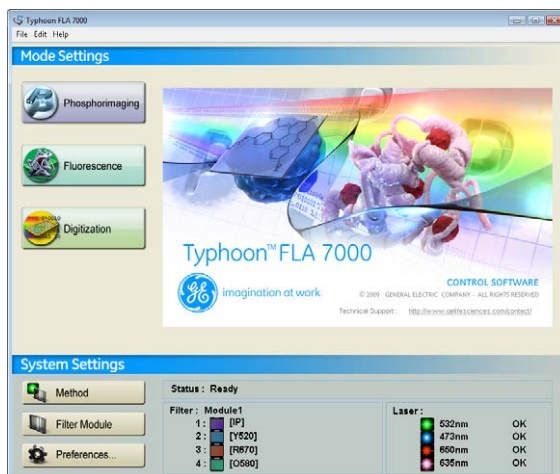
#### Aðgerð

- 1 Turn on the computer.
- 2 Make sure that Typhoon FLA 7000 has completed the warm-up, after which only the power lamp on the upper left panel on the front of the Typhoon FLA 7000 is lit.
- 3 Start Typhoon FLA 7000 control software from the **Start** menu, or use the desktop shortcut.



## Prep Aðgerð

- 4 The main window of the Typhoon FLA 7000 control software is displayed.



The condition is displayed in the Status area of the main window. Status messages are as follows:

Skilaboð	Explanation
<b>Disconnected</b>	Cannot recognize Typhoon FLA 7000. Please check connection and power.
<b>Warm-up</b>	Typhoon FLA 7000 is in self-diagnosis. Please wait.
<b>Ready</b>	The unit is ready to use.

# 5 Reading fluorescent samples

## Í þessum kafla

Þessi kafli inniheldur eftirfarandi hluta:

hluti	Sjá bls.
5.1 Set the reading mode and reading conditions	75
5.2 Place the sample on the stage	77
5.3 Place the stage in Typhoon FLA 7000	80
5.4 Read the sample	81

## 5.1 Set the reading mode and reading conditions

### Start the system

- 1 Turn on Typhoon FLA 7000 and the computer.
- 2 Start the Typhoon FLA 7000 control software.

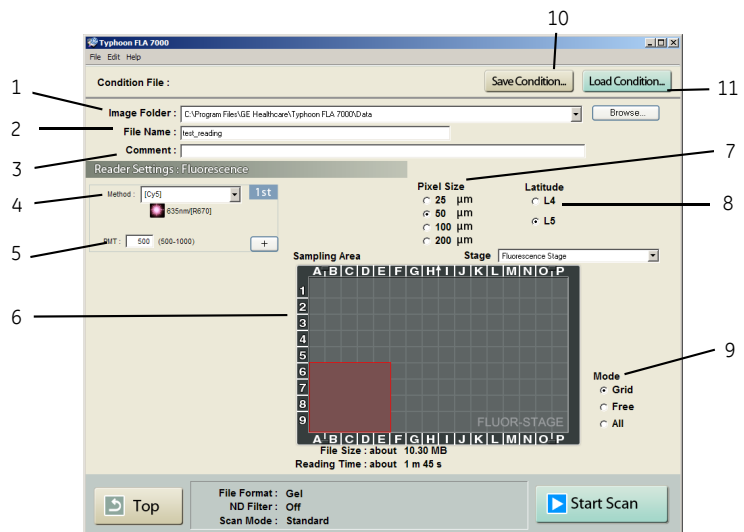
### Set the reading conditions

Click the **Fluorescence** button in the main window to reach the **Reader Settings** window for the fluorescence mode .



Set the reading conditions by following the steps in the table below.



**Efnisyfirlit** All parts in the window are described in [Overview of the main window, á bls. 15](#).



Hluti	Lýsing
1	<b>Image folder:</b> specify where to save the file after the reading.
2	<b>File Name:</b> enter the name of a file to save image data.

## 5 Reading fluorescent samples

### 5.1 Set the reading mode and reading conditions

Hluti	Lýsing
3	<b>Comment:</b> enter an optional comment. The comment is embedded in the file where the image is saved, and can be viewed with the analyzing software.
4	<b>Method:</b> set the method to use in the scan. Up to 4 scans can be performed in a row, all with individual methods.
5	<b>PMT:</b> set the voltage of the photo-multiplier tube. The higher the value, the higher the sensitivity.  Click  to increase the number of scans.  Click  to decrease the number of scans.
6	Set the scanning area. <ol style="list-style-type: none"><li>1 Select a method in the drop-down menu.</li><li>2 Drag the red square to the desired position of the scanning area.</li><li>3 Drag the sides of the red square as needed to adjust the size of the scanning area.</li></ol>
7	<b>Pixel Size:</b> set the pixel size.  Choose a <b>small</b> pixel size for <b>high quality</b> images. Note that a small pixel size setting increases the reading time and the size of the image file.
8	<b>Latitude:</b> Specify the dynamic range. <ul style="list-style-type: none"><li>• <b>L5</b> provides a larger detectable range than <b>L4</b>.</li><li>• <b>L4</b> provides a finer density gradation, if the signals of the sample areas are in the correct range.</li></ul>
9	<b>Mode:</b> Specify the mode for the reading area borders. <ul style="list-style-type: none"><li>• Select <b>Grid</b> to limit the borders to the grid lines.</li><li>• Select <b>Free</b> for an arbitrary area.</li><li>• Select <b>All</b> to use the entire Fluor stage as the reading area.</li></ul>
10	<b>Save Condition...</b> click this button to save the current reading conditions in a file, if desired. For details, refer to the <i>User Manual</i> .
11	<b>Load Condition...</b> click this button to load previously saved reading conditions, if desired. For details, refer to the <i>User Manual</i> .

## 5.2 Place the sample on the stage



### AÐVÖRUN

Always wear gloves, protective glasses and a lab coat or similar when handling samples.

### Placing a gel sample on the Fluor stage

#### Efnisyfirlit

- The sample must not be thicker than 30 mm. For solutions, the maximum height is 4 mm.
- Make sure there are no bubbles or gaps on the contact surface.

#### Þrep

#### Aðgerð

- 1 Place the sample on the Fluor stage.



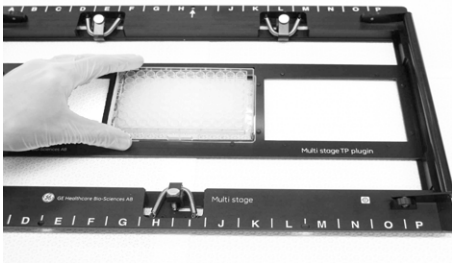
Placing a titer plate on the Multi stage

Prep      Aðgerð

- 1      Place the titer plate frame on the Multi stage.



- 2      Place the titer plate in the desired position in the titer plate frame.



Placing a gel sample with glass on the Multi stage

Prep      Aðgerð

- 1      Place a gel sample with glass on the Multi stage.

**prep**      **Aðgerð**

---

- 2      Carefully fold down the spring-loaded glass holders on the glass.



- 3      Tighten the screws on the glass holders as necessary.

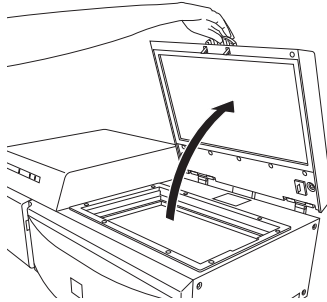


## 5.3 Place the stage in Typhoon FLA 7000

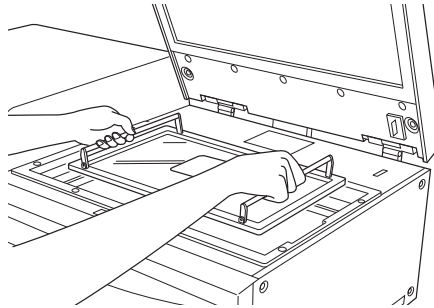
### Placing the Fluor or Multi stage in the Typhoon FLA 7000

prep      Aðgerð

- 1 Pull the knob up and open the lid.



- 2 Position the stage so that the black triangle mark is aligned with the corresponding mark on the setting block. Fit the setting block pin in the hole of the stage.

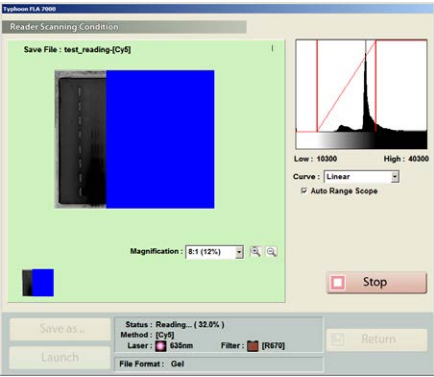


- 3 Pull the knob up and close the lid.



## 5.4 Read the sample

Click the **Start Scan** button to start reading.



- Efnisyfirlit

If **Stop** is clicked during scanning, the unscanned area will be saved as an image with a data value of 0 (light intensity of 0).
- Efnisyfirlit

After clicking **Stop**, the reading is aborted and cannot be resumed from the location where the reading was stopped.

## Adjust the display parameters

Páttur	Explanation
Curve	Adjust the gradations in the image. <div><div>Exponential</div>Exponential gradation adjustment</div> <div><div>Linear</div>Linear gradation adjustment</div> <div><div>Sigmoid</div>Sigmoid gradation adjustment</div>
Magnification	Zoom in or out.
Auto range scope	Check this option to optimize the tones automatically.

# 6 Exposing Storage phosphor screens

## Í þessum kafla

Þessi kafli inniheldur eftirfarandi hluta:

hluti	Sjá bls.
6.1 Handling precautions	83
6.2 Preparing the Storage phosphor screen	85
6.3 Exposing the Storage phosphor screen	87

## 6.1 Handling precautions

### Exposure environment



#### TILKYNNING

**Avoid environmental radiation.** Avoid exposing Storage phosphor screens in places where the environmental radiation may be increased, for example rooms with concrete walls or in basements.



#### TILKYNNING

Do not stack cassettes during exposure.

### Handling the Storage phosphor screen



#### AÐVÖRUN

Always wear cotton gloves when handling Storage phosphor screens.



#### TILKYNNING

Use a suction rod when taking the Storage phosphor screen out of the cassette. Prying the Storage phosphor out may result in the edge peeling off, making the Storage phosphor screen unusable.



#### TILKYNNING

- Do not scratch or bend the Storage phosphor screen.
- Keep the Storage phosphor screen free from dust.

## 6 Exposing Storage phosphor screens

### 6.1 Handling precautions



#### TILKYNNING

Protect the Storage phosphor screen from water and volatile solvents.

- Dry the sample thoroughly before exposing it.
- Wrap wet samples in plastic film and make sure that no liquid exits. Use double layers if the sample contains volatile solvents.
- If water enters the Storage phosphor screen, the sensitivity of the Storage phosphor screen is reduced.
- Volatile solvents may deform the protective film on the Storage phosphor screen.



#### TILKYNNING

Protect exposed Storage phosphor screens from light until the reading is finished.

## Geymsla



#### TILKYNNING

Remove the Storage phosphor screen from the Typhoon FLA 7000 main unit when not in use. Store the Storage phosphor screens in a horizontal position, protected from moisture.

## 6.2 Preparing the Storage phosphor screen

### Procure necessary tools and items

Prepare by acquiring the following items:

- Storage phosphor screen cassette
  - Radio isotope labeled samples
  - Gloves
  - Plastic film
  - Soft, lint-free tissues
  - Etanol
- 

### Clean the Storage phosphor screen and the cassette

Clean the surface of the Storage phosphor screen and the inside of cassette with a soft tissue to remove dust and stains.

---

### Erase the Storage phosphor screen

The FLA Image Eraser can erase the Storage phosphor screen in around 15 minutes, if it is not overly exposed. For details, refer to the *FLA Image Eraser User Manual*.

---

### Dim the lighting

- Dim the ambient light to 20 lux or less before opening or moving the Storage phosphor screen without a cover.
  - Protect the phosphor stage with the protective cover when removing an exposed Storage phosphor screen from the cassette and placing it on the Phosphor stage.
-

#### Set the exposure time

Set the exposure time so that the exposure finishes right before the reading starts.

**Efnisyfirlit**     *The exposure time of the Storage phosphor screen is approximately one twentieth of the time required for X-ray film. Take this into consideration when setting the initial exposure time.*

**Ábending:**     *For increased image quality, minimize the time between exposing the Storage phosphor screen and reading it with the Typhoon FLA 7000.*

---

## 6.3 Exposing the Storage phosphor screen

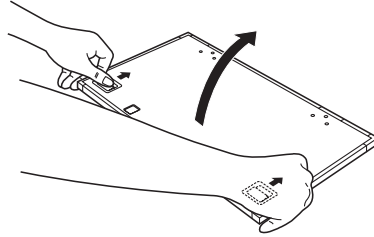
### Prep Aðgerð

- 1 Erase the Storage phosphor screen completely.
- 2 Wrap the radio isotope sample with plastic film. Make sure not to wrinkle the wrapping film.

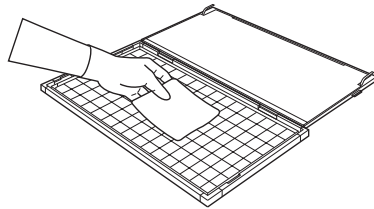
#### Efnisyfirlit

*When using a tritium storage phosphor screen to detect tritium, place the sample directly on the storage phosphor screen. A tritium storage phosphor screen can be used only once.*

- 3 Open the top cover of the cassette. Unlock the cassette by sliding the buttons on both sides up.



- 4 Place the sample on the cassette. Make sure that the sample surface faces up.



#### Efnisyfirlit

*Keep the radio imaging sample away from the edge of the Storage phosphor screen. Otherwise, the recorded data may become corrupted.*

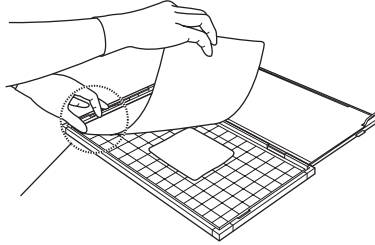
## 6 Exposing Storage phosphor screens

### 6.3 Exposing the Storage phosphor screen

#### Prep

#### Aðgerð

- 5 Place the Storage phosphor screen in the cassette, with the exposure surface of the Storage phosphor screen facing the sample. Make sure that the notch of the Storage phosphor screen is in the front left corner of the cassette as shown below.



- 6 Close the cover of the cassette. Press on the cover until it clicks into place.



# 7 Reading phosphorimaging samples

## Í þessum kafla

Þessi kafli inniheldur eftirfarandi hluta:

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7.1 Set the reading conditions	90
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## 7.1 Set the reading conditions

### Start the system

- 1 Turn on Typhoon FLA 7000 and the computer.
- 2 Start the Typhoon FLA 7000 control software.

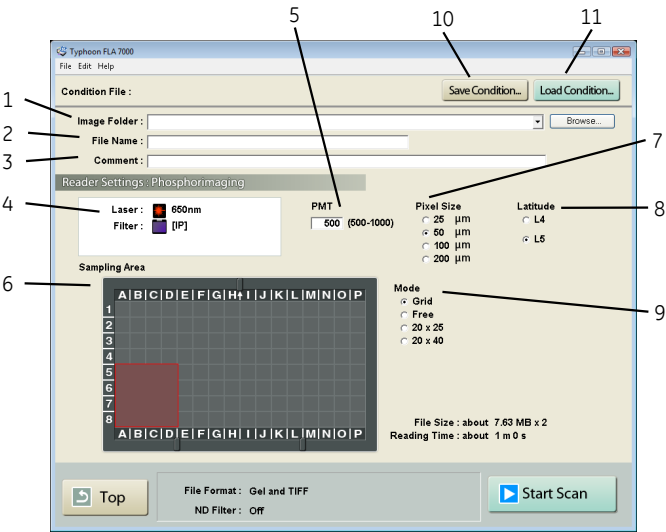
### Set the reading conditions

Click the **Phosphorimaging** button to reach the **Reader Settings** window for the phosphorimaging mode.



Set the reading conditions by following the steps in the table below.

**Efnisyfirlit** All parts in the window are described in [Overview of the main window, á bls. 15](#).



Hluti	Lýsing
1	<b>Image folder:</b> specify where to save the file after the reading.
2	<b>File Name:</b> enter the name of a file to save image data.

Hluti	Lýsing
3	<b>Comment:</b> enter an optional comment. The comment is embedded in the file where the image is saved, and can be viewed with the analyzing software.
4	<p>Displays the laser and the filter used. In phosphorimaging mode, the laser is automatically set to <b>650 nm</b>, and the filter is automatically set to <b>IP</b>.</p> <p><b>Efnisyfirlit</b></p> <p><i>To use the phosphorimaging mode, the 650 nm laser must be loaded, and the IP filter must be set. If these conditions are not fulfilled, the <b>Reader Settings</b> window for the phosphorimaging mode cannot be accessed.</i></p>
5	<b>PMT:</b> set the voltage of the photo-multiplier tube. The higher the value, the higher the sensitivity.
6	<p>Set the scanning area.</p> <ol style="list-style-type: none"> <li>1 Drag the red square to the desired position of the scanning area.</li> <li>2 Drag the sides of the red square as needed to adjust the size of the scanning area.</li> </ol>
7	<p><b>Pixel Size:</b> set the pixel size.</p> <p>Choose a small pixel size for high quality images. Note that a small pixel size setting increases the reading time and the size of the image file.</p>
8	<p><b>Latitude:</b> Specify the dynamic range.</p> <ul style="list-style-type: none"> <li>• <b>L5</b> provides a larger detectable range than <b>L4</b>.</li> <li>• <b>L4</b> provides a finer density gradation, if the signals of the sample areas are in the correct range.</li> </ul>
9	<p><b>Mode:</b> Specify the mode for the reading area borders.</p> <ul style="list-style-type: none"> <li>• Select <b>Grid</b> to limit the borders to the grid lines.</li> <li>• Select <b>Free</b> for an arbitrary area.</li> <li>• Select <b>All</b> to use the entire Fluor stage as the reading area.</li> </ul>
10	<b>Save Condition...</b> click this button to save the current reading conditions in a file, if desired. For details, refer to the <i>User Manual</i> .

7 Reading phosphorimaging samples

7.1 Set the reading conditions

Hluti	Lýsing
11	<b>Load Condition...</b> click this button to load previously saved reading conditions, if desired. For details, refer to the <i>User Manual</i> .

## 7.2 Place the storage phosphor screen on the phosphor stage

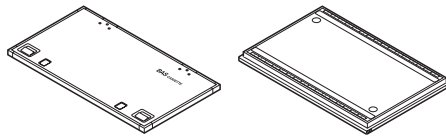


### AÐVÖRUN

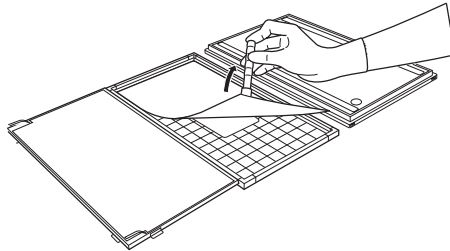
Always wear cotton gloves when handling storage phosphor screens.

#### þrep Aðgerð

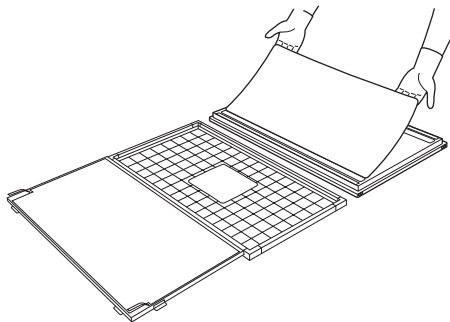
- 1 Turn down the lighting in the room.
- 2 Place the cassette with the exposed storage phosphor screen next to the phosphor stage.



- 3 Pick up the storage phosphor screen and move it to the phosphor stage.



- 4 Place the storage phosphor screen on the back of the phosphor stage, with the white or blue reading surface of the storage phosphor screen facing up.

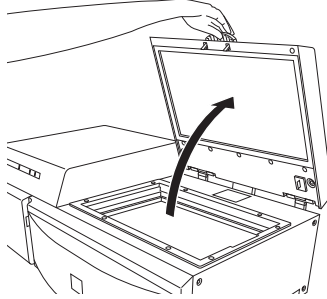


## 7.3 Place the phosphor stage in the Typhoon FLA 7000

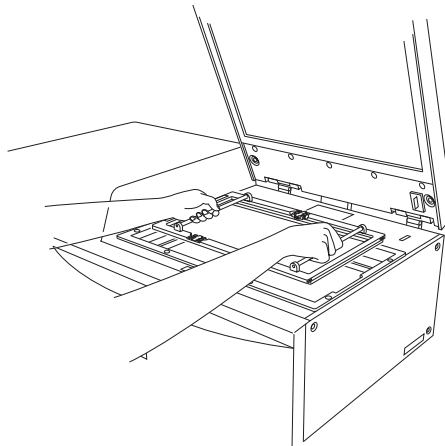
**prep**      **Aðgerð**

---

- 1 Pull the knob up and open the lid.



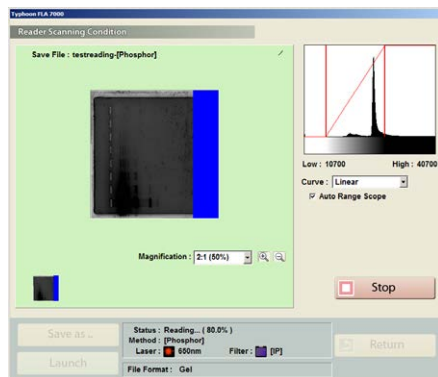
- 2 Position the stage so that the black triangle mark is aligned with the corresponding mark on the setting block.



- 3 Fit the setting block pin in the hole of the stage.
- 4 Pull the knob up and close the lid.
-

## 7.4 Read the sample

Click the **Start Scan** button to start reading the sample. The scanning progress window opens.



**Efnisyfirlit** If **Stop** is clicked during scanning, the unscanned area will be saved as an image with a data value of 0 (light intensity of 0).

**Efnisyfirlit** After clicking **Stop**, the reading is aborted and cannot be resumed from the location where the reading was stopped.

## Adjust the display parameters

Þáttur	Explanation
<b>Curve</b>	Adjust the gradations in the image.  <div> <b>Exponential</b> Exponential gradation adjustment </div> <div> <b>Linear</b> Linear gradation adjustment </div> <div> <b>Sigmoid</b> Sigmoid gradation adjustment </div>
<b>Magnification</b>	Zoom in or out.
<b>Auto range scope</b>	Check this option to optimize the tones automatically.

## 8 Reading digitization samples

### Í þessum kafla

Þessi kafli inniheldur eftirfarandi hluta:

hluti	Sjá bls.
8.1 Set the reading mode and reading conditions	97
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8.3 Place the stage in the Typhoon FLA 7000	100
8.4 Read the sample	101



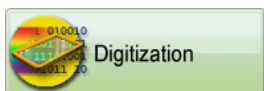
## 8.1 Set the reading mode and reading conditions

### Start the system

- 1 Turn on Typhoon FLA 7000 and the computer.
- 2 Start the Typhoon FLA 7000 control software.

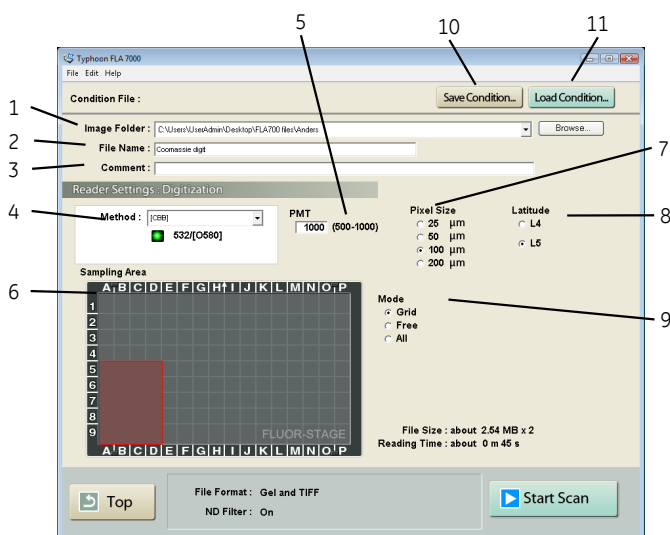
### Set the reading conditions

Click the **Digitization** button of the main window to reach the Reader Settings window for the digitization mode.



Set the reading conditions by following the steps in the table below.

**Efnisyfirlit** All parts in the window are described in [Overview of the main window, á bls. 15](#).



Hluti	Lýsing
1	<b>Image folder:</b> specify where to save the file after the reading.
2	<b>File Name:</b> enter the name of a file to save image data.

## 8 Reading digitization samples

### 8.1 Set the reading mode and reading conditions

Hluti	Lýsing
3	<b>Comment:</b> enter an optional comment. The comment is embedded in the file where the image is saved, and can be viewed with the analyzing software.
4	<b>Method:</b> set the method to use in the scan.
5	<b>PMT:</b> set the voltage of the photo-multiplier tube. The higher the value, the higher the sensitivity.
6	Set the scanning area. <ol style="list-style-type: none"><li>1 Select a method in the drop-down menu.</li><li>2 Drag the red square to the desired position of the scanning area.</li><li>3 Drag the sides of the red square as needed to adjust the size of the scanning area.</li></ol>
7	<b>Pixel Size:</b> set the pixel size. Choose a <b>small</b> pixel size for <b>high quality</b> images. Note that a small pixel size setting increases the reading time and the size of the image file.
8	<b>Latitude:</b> Specify the dynamic range. <ul style="list-style-type: none"><li>• <b>L5</b> provides a larger detectable range than <b>L4</b>.</li><li>• <b>L4</b> provides a finer density gradation, if the signals of the sample areas are in the correct range.</li></ul>
9	<b>Mode:</b> Specify the mode for the reading area borders. <ul style="list-style-type: none"><li>• Select <b>Grid</b> to limit the borders to the grid lines.</li><li>• Select <b>Free</b> for an arbitrary area.</li><li>• Select <b>All</b> to use the entire Fluor stage as the reading area.</li></ul>
10	<b>Save Condition...</b> click this button to save the current reading conditions in a file, if desired. For details, refer to the <i>User Manual</i> .
11	<b>Load Condition...</b> click this button to load previously saved reading conditions, if desired. For details, refer to the <i>User Manual</i> .

## 8.2 Place the sample on the stage

### Placing a gel sample on the Fluor stage

- Efnisyfirlit**
- The sample must not be thicker than 30 mm. For solutions, the maximum height is 4 mm.
  - Make sure there are no bubbles or gaps on the contact surface.

#### þrep Aðgerð

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- 1 Place the sample on the Fluor stage.



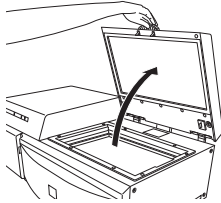
- 2 Place the fluorescent plate for digitization on top of the sample.
-

## 8.3 Place the stage in the Typhoon FLA 7000

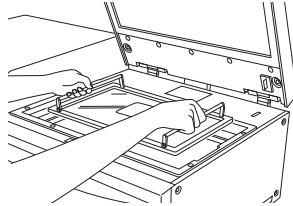
### Prep Aðgerð

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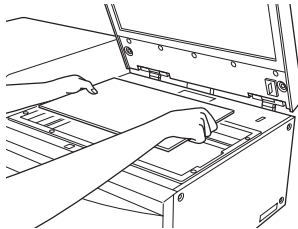
- 1 Pull the knob up and open the lid.



- 2 Position the stage so that the black triangle mark is aligned with the corresponding mark on the setting block. Fit the setting block pin in the hole of the stage.



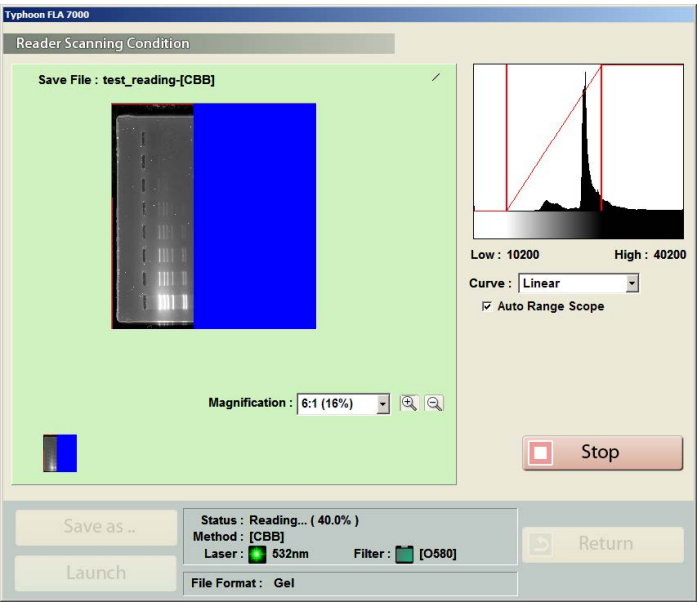
- 3 Gently place the fluorescent plate for digitizing on top of the digitized sample.



- 4 Pull the knob up and close the lid.
-

## 8.4 Read the sample

Click the **Start Scan** button to start reading the sample. The scanning progress window opens.



- Efnisyfirlit** If **Stop** is clicked during scanning, the unscanned area will be saved as an image with a data value of 0 (light intensity of 0).
- Efnisyfirlit** After clicking **Stop**, the reading is aborted and cannot be resumed from the location where the reading was stopped.

### Adjust the display parameters

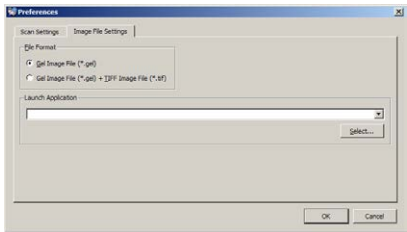
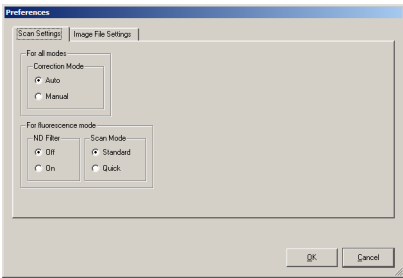
Páttur	Explanation
<b>Curve</b>	Adjust the gradations in the image.  <b>Exponential</b> Exponential gradation adjustment <b>Linear</b> Linear gradation adjustment <b>Sigmoid</b> Sigmoid gradation adjustment
<b>Magnification</b>	Zoom in or out.
<b>Auto range scope</b>	Check this option to optimize the tones automatically.

# á bls. A Other settings

## Preferences



Click the **Preferences...** button in the main window to display a tabbed dialog box, where various options related to sample reading can be viewed and changed. Not all options are relevant in all scanning modes.



Setting	Lýsing
<b>Correcti- on Mode</b>	<p><b>Auto:</b> Use specific image shading correction data that were adjusted in accordance with each laser.</p> <p><b>Manual:</b> The correction method must be selected individually in the <b>Reader Settings</b> window.</p> <p><b>Efnisyfirlit</b></p> <p><i>The correction mode settings list is registered by a serviceman. Please contact the dealer where you purchased Typhoon FLA 7000, or contact GE.</i></p>
<b>ND Filter</b>	<p>Enables the use of an ND filter to adjust the light intensity. Use the ND filter if the signal from the sample is very strong.</p> <p>Select <b>On</b> to enable the ND filter. Select <b>Off</b> to disable the ND filter.</p>

Setting	Lýsing
<b>Scan Mode</b>	<p>Determines the scanning speed.</p> <p><b>Standard:</b> 200 µm/210 s, 100 µm/210 s, 50 µm/330 s, 25 µm/450 s.</p> <p><b>Quick:</b> 200 µm/150 s, 100 µm/150 s, 50 µm/210 s, 25 µm/330 s.</p>
<b>File Format</b>	<p>Determines the file format used to save the reading data.</p> <p><b>Gel Image File (*.gel):</b> The standard file format is a .gel file which contains square root encoded pixel data.</p> <p><b>Gel Image File (*.gel) + Tiff Image File (*.tif):</b> In combination with a .gel file, a read image can also be saved in TIFF file format. For TIFF files, image data type is always set to Linear format.</p>
<b>Launch Application</b>	<p>Contains the path to the application used to analyze the data.</p> <p>Select the analysis application by clicking the <b>Select...</b> button. Then browse to the software executable and click <b>OK</b>.</p>

### User account specific settings

Changes to the settings in the **Preferences** dialog affect only the current Windows user account. Changes made using a different user account do not affect the current user account.

# á bls. B

## Daily maintenance

### Cleaning the stage



**AÐVÖRUN**

Wear gloves to prevent direct contact with chemical substances.

Þrep	Aðgerð
1	Remove the stage from the main body of the instrument.
2	Wipe the stage with a sponge moistened with a fluorescence-free neutral detergent.
3	Thoroughly rinse the stage with water and dry with a lint-free cloth.
4	Place the stage in the main body of the instrument.



## á bls. C Reglulegt viðhald

### Cleaning the outside of Typhoon FLA 7000

Clean the outside with a moist soft cloth and a mild detergent. Wipe afterwards with a dry soft cloth.

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### Maintenance of the SHG laser

If you use the SHG laser in the Typhoon FLA 7000, it will require periodical calibration. When the Typhoon FLA 7000 is switched on, it automatically executes calibration. You do not need to do a manual calibration if the Typhoon FLA 7000 is used at least once a month.



#### AÐVÖRUN

Activate the Typhoon FLA 7000 at least once every 30 days to execute calibration. This calibration makes sure that the SHG laser operates properly. Failure to calibrate the Typhoon FLA 7000 every 30 days reduces the lifespan of the SHG laser.

Operation procedures:

- 1 Turn on the Typhoon FLA 7000 and the computer.
  - 2 Wait until warm-up and self-diagnosis is completed, and the scanner is ready. Only the power lamp on the upper left panel is lit. The automatic calibration has now been performed.
  - 3 Turn off the Typhoon FLA 7000 and the computer.
- 

### Replacing the filters in the Typhoon FLA 7000

See the instruction in [á bls. D Installing and replacing filters, á bls. 106](#).

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# á bls. D

## Installing and replacing filters

### Replacement and installation sequence

Replacement or installation of a filter is performed in the following sequence:

- 1 Remove the filter module from the scanner.
  - 2 If replacing a filter, remove the filter to be replaced from the filter module.
  - 3 Install the new filter in the filter module.
  - 4 Place the filter module in the scanner.
  - 5 Register the filter change in the Typhoon FLA 7000.
- 

### Remove the filter module from the scanner

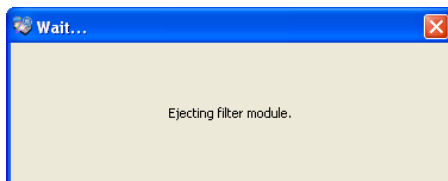
prep Aðgerð

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- 1 Click the **Filter Module** button in the main window.



The following status message appears.

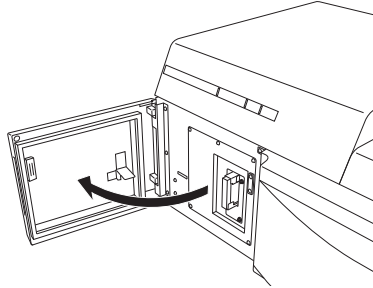


Wait until the message is closed before proceeding to the next step.

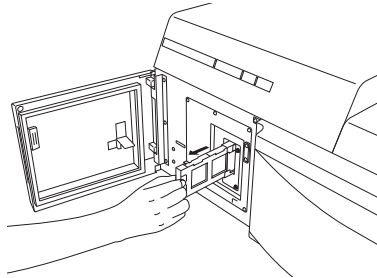
**Prep**      **Aðgerð**

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- 2      Open the filter change door.



- 3      Pull filter module straight out.

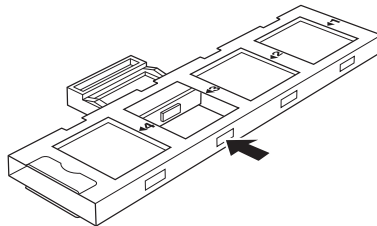


## Remove and install filters in the filter module

**Prep**      **Aðgerð**

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- 1      Press the notch on the bottom of the filter module and pull out the filter.

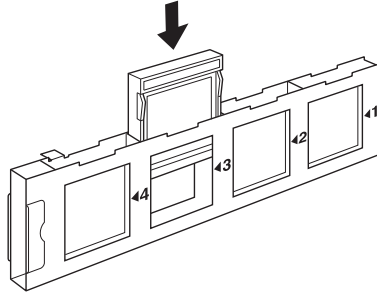


## D Installing and replacing filters

### Prep Aðgerð

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- 2 Place the new filter in the filter module.



Push the new filter in until it locks in place.

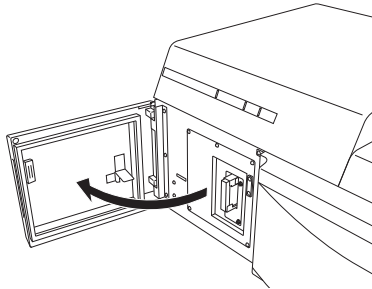
---

## Place the filter module in the scanner

### Prep Aðgerð

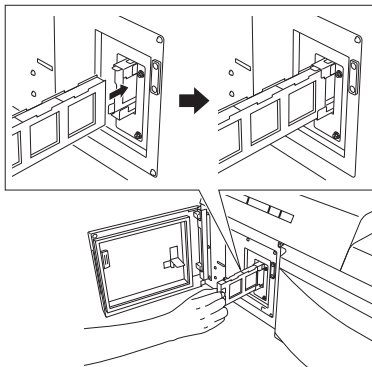
---

- 1 Open the filter change door.



**Prep**    **Aðgerð**

- 2 Insert the filter module in the filter module holder.



- 3 Close the filter change door.

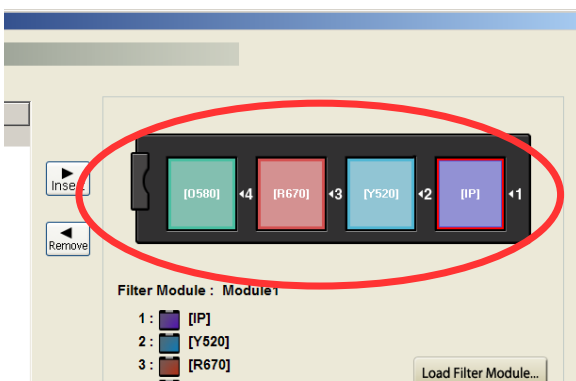
## Register the filter change in Typhoon FLA 7000

**Prep**    **Aðgerð**

- 1 Click the **Filter Module** button in the main window.

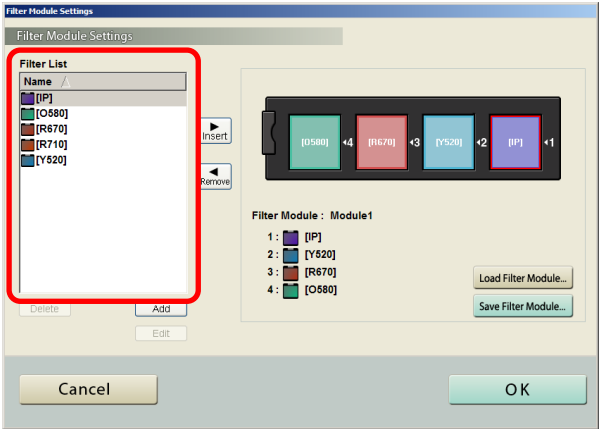


- 2 Click the desired filter position on the filter tray.



Prep      Aðgerð

3      Select the filter to be registered from **Filter List**.



4      Click the **Insert** button to register the filter.



**Ábending:**

You can also click and drag the filter from **Filter List** to the desired filter position.

5      Click the **OK** button.

# á bls. E

## Default sample detection methods

### 473 nm laser

Method name	Filter type
Cy™ 2	Y520
FITC	Y520
SYBR™ Green	Y520
SYPRO™ Ruby	O580
SYPRO Orange	Y520
FAM™	Y520
Alexa Fluor™ 488	Y520
Digitize473	Y520

### 532 nm laser

Method name	Filter type
Cy3	O580
EtBR	O580
ROX™	O580
Pro-Q™ Diamond	O580
Digitize532	O580

### 635 nm laser

Method name	Filter type
Cy5	R670

E Default sample detection methods

Method name	Filter type
Alexa Fluor 633	R670
DDAO	R670

650 nm laser

Method name	Filter type
Phosphorimaging	IP
CBB	R710



# á bls. F

## Tæknilýsingar

### Wavelengths supported

- 473 nm
- 532 nm
- 635 nm
- 650 nm

### Filter types supported

- IP (imaging plate), included
- O580, included
- R670, included
- Y520, included
- R710 (optional accessory)

### Scanning specifications

Reading mode	Scanned image size
Storage phosphor screen:	20 cm x 40 cm maximum (18 cm x 36 cm valid field angle)
Fluorescent:	24 cm x 40 cm maximum (22 cm x 36 cm valid field angle) (238 mm x 398 mm setting size)
Digitization:	24 cm x 40 cm maximum (22 cm x 36 cm valid field angle) (238 mm x 398 mm setting size)

Þáttur	Data
Pixel size	25, 50, 100 or 200 µm (selectable)

Þáttur	Data
Gradation	16-bit
Dynamic range	Five orders of magnitude
Maximum image capacity	307.2 MB (25 µm)/ 76.8 MB (50 µm) 19.2 MB (100 µm)/ 4.8 MB (200 µm)

Mál og þyngd

Eining	Dimensions (mm, w x d x h)	Weight (kg)
Reading block	940 x 556 x 360 (projections not included)	62
Storage phosphor screen cassette	227.5 x 427.5 x 15	Approx. 1
Phosphor stage	429 x 283 x 35	Approx. 2
Fluor stage	429 x 283 x 35	Approx. 1
Multi stage	429 x 283 x 33	Approx. 1.3
FLA Image Eraser	603 x 512 x 163	14.5

**Efnisyfirlit**     *The Reading block is a standard unit. The other units are optional.*

Aflgjafi

Þáttur	Data
Input voltage	100 to 240 V~ (AC)
Allowable variations in voltage	±10%
Tíðni	50 til 60 Hz
Rated current	1.5 to 3.0 A

## Environmental conditions

Þáttur	Data
Operating conditions	Temperature: +15 to +30°C Humidity: 30 to 70% (no dew condensation)
Non-operating conditions	Temperature: -10 to +40°C Humidity: 20 to 70% (no dew condensation)
Transportation & storage conditions (within 96 hours)	Temperature: -25 to +70°C Humidity: 10 to 80% (no dew condensation)
Heat radiation	151 W/h (reader block + FLA Image Eraser)
Lighting	It is recommended to lower the lighting level to about 20 lux when moving a sample from the cassette onto the Phosphor stage after exposure. 20 lux is the brightness level at which most people can read newspaper-sized text after he/she becomes accustomed to the brightness.
Location of use	Aðeins til nota innandyrá
Maximum altitude for use	2,000 m above sea level
Yfirspennuflokkur	Transient overvoltage category II
Applicable Pollution Rating	Pollution Degree 2

## Noise levels

Þáttur	Data
Suð	70 dB (A) or lower
Degrees of protection provided by enclosure	IP20

Upplýsingar um hvernig hafa má samband  
við skrifstofu á þínu svæði er að finna á  
[www.gelifesciences.com/contact](http://www.gelifesciences.com/contact)

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